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UNION OF SOUTH AFRICA

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ANNUAL REPORT

OF THE

Department of Public Health

YEAR ENDED 30th JUNE, 1940

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DEPARTMENT OF PUBLIC HEALTH.

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DEPARTMENT OF PUBLIC HEALTH.

Report for the Year ended 30th June, 1940.

The Honourable the Minister of Public Health,
Pretoria.

Sir,

I have the honour to submit for your information my report on the work of the Department for the year ended 30th June, 1940.

I.—INTRODUCTORY.

The Annual Report of a Government Department, apart from presenting an account of the work of the Department, gives an opportunity of drawing attention to matters of special moment.

The Press has, in the past, featured matters specially dealt with in Annual Reports and the publicity has undoubtedly served to emphasize the importance of the health problems with which the Department is confronted.

Apart from these more or less special items the reports of the Department have aimed at giving from year to year a consecutive picture of the progress being made with health matters or the need for action with regard thereto.

The statistical tables appearing in the Annual Reports serve a most useful purpose but do not sufficiently disclose what is being done over a period to grapple with some of our problems.

Tuberculosis.

As an example of this, the position in regard to tuberculosis can be quoted. In the Annual Report for 1933 the position up to that date was reviewed, and a scheme was outlined for increasing the facilities for dealing with the disease. That scheme visualised accommodation in Natal, the Orange Free State, Johannesburg and at various centres in the Cape, including Port Elizabeth, East London, Umtata and Lovedale. East London has decided to utilise beds at the Infectious Diseases Hospital for treatment of tuberculosis pending the provision of special accommodation for the purpose. All the schemes visualised have been completed.

In Natal the King George V Tuberculosis Hospital at Durban with 137 beds is now in full operation. This is a hospital equipped with all modern facilities for dealing with cases of pulmonary tuberculosis.

In the Orange Free State, arrangements have been made for the admission of patients from a wide area to the Tempe Hospital.

Springkell.

In the Transvaal accommodation has been provided for Europeans at Springkell Sanatorium. This institution was originally built by the Mining Industry for the treatment of miners suffering from miners' phthisis. Arrangements were made for the admission of non-miners and buildings were erected for the admission of women patients. At Springkell facilities exist for the modern surgical treatment of pulmonary tuberculosis.

Rietfontein Hospital.

Forty-eight beds were provided at Rietfontein for non-Europeans suffering from pulmonary tuberculosis. It is most gratifying to be able to report that these non-Europeans are responding to treatment very well and but for the present war conditions the provision of more accommodation would have been considered.

Nelspoort Sanatorium.

At Nelspoort Sanatorium the number of beds was increased from 138 to 170.

Port Elizabeth.

The Elizabeth Donkin Hospital was opened in October, 1938. This is a new infectious diseases hospital and has 72 beds for persons suffering from tuberculosis—36 for Europeans and 36 for non-Europeans.

Umtata.

A new section was added to the existing general hospital for cases of infectious disease and tuberculosis. The number of beds for tuberculosis cases is 34.

Macvicar Hospital, Lovedale.

A new hospital adjacent to the Victoria Hospital, Lovedale, was opened by the Hon. the Minister, Mr. H. Lawrence, K.C., in July, 1940. This hospital of 100 beds is reserved for non-Europeans suffering from pulmonary tuberculosis.

Cape Town.

A new hospital of 200 beds has been approved. The ground has been purchased near Durbanville and plans are now being prepared.

In addition to these special hospitals, use is being made of hospitals under missionary control to an increasing degree. In Durban an arrangement for 50 beds at a fixed daily rate per patient has been made with the McCord Hospital. Arrangements for bed accommodation for tuberculotics also exist with the following missionary hospitals:—

All Saints Mission Hospital, Engcobo.
Benedictine Mission Hospital, Nongoma (otherwise referred to as Nongoma Mission Hospital).
Betania Mission Hospital, Dundee.
Bishop Roach Memorial Hospital (or St. Christopher's), Etalaneni.
Centocow Mission Hospital, Polela.
Ceza Mission Hospital, Mahlabatini.
Charles Johnson Memorial Hospital, Nqutu.
Christ the King Mission Hospital, Ixopo.
Church of Scotland Mission Hospital, Msinga.
Donald Fraser Mission Hospital, Sibasa.
Ekombe Mission Hospital, Kranskop.
George Stegmann Mission Hospital, Warmbaths.
Holy Cross Mission Hospital, Lusikisiki.
Holy Rood Mission Hospital, Piet Retief.
Jane Furse Memorial Hospital, Sekukuniland.
Mangwazana Mission Hospital, Ubombo.
Mbongolwane Mission Hospital, Eshowe.
McCord Zulu Mission Hospital, Durban.
Moroka Mission Hospital, Thaba 'Nchu.
Murchison Mission Hospital (or Pumulani), Port Shepstone.
Nessie Knight Mission Hospital, Sulenkama.
Nkonyeni Mission Hospital, Mahlabatini.
Shiluvane Swiss Mission Hospital, Tzaneen.
St. Barnabas Mission Hospital, Ngqeleni.
St. Francis Mission Hospital, Mahlabatini.
St. Lucy's Mission Hospital, Tsolo.
St. Margaret's Mission Hospital, Umzimkulu.
St. Mary's Mission Hospital, Kwa-Magwaza (Melmoth).
St. Mary's Mission Hospital, Mariannhill, Pinetown.
Umlamli Mission Hospital, Herschel.
Umlazi Mission Hospital, Umlazi, Pinetown.
Umpumulu Mission Hospital, Mapumulo.

Future Policy.

A modern hospital fully equipped to deal with tuberculosis costs approximately £1,000 a bed. Many cases of tuberculosis, especially among the non-Europeans, are not suitable for surgical treatment and some cheaper form of hospitalisation is indicated. Chronic cases may be hospitalised near their own homes, and similarly the acute cases should be within visiting distance of ther relatives.

For the non-European especially, it is possible to run a small isolation hospital at a comparatively small cost, and many local authorities—especially in the Cape Province—have realised this fact. There is a small hospital for non-Europeans at Paarl which has proved so useful that the Paarl Town Council is doubling the accommodation. Schemes are under consideration for a central hospital at Worcester and a smaller central hospital at Beaufort West while local schemes at Malmesbury, Caledon, Swellendam and Worcester are contemplated. The ultimate intention is to have isolation accommodation available near the homes of the patients so that control can be exercised. Clinics would be established at such small hospitals where possible, so that every case of tuberculosis can be kept under control. Valuable assistance has been rendered by voluntary associations in regard to after-care. This is most important work, but as measures for combating tuberculosis do not give rapid results, it is not sufficiently realised how much good is being done in a quiet way.

Venereal Diseases.

The cost to the country of treating venereal diseases is £90,000 per annum. Considerable perturbation exists because of the prevalence of these diseases, especially syphilis.

The modern treatment of syphilis is undoubtedly effective, but only when sufficient injections are given. The patient can be rendered non-infectious with a comparatively short course of treatment, but the relapse to infectivity appears to be in inverse proportion to the thoroughness of treatment. The question arises whether the practice of attempting to treat the maximum number with a few injections each is giving the best results, and this and other matters are receiving the special attention of the Department.

Facilities are provided for persons suffering from syphilis to obtain treatment, but owing to distance, and to the fact that many patients do not return for injections as soon as obvious manifestations of the disease disappear, although not cured, treatment is often inadequate.

A special venereal disease committee has been appointed to advise the Department on all matters connected with this disease, but as usual the final issue is mainly one of cost and if, as seems probable, the policy of the Department has to be altered radically, considerably increased expenditure may become necessary.

Nutrition.

In 1935 the League of Nations launched a comprehensive investigation into the causes of malnutrition and the general methods likely to remove them.

The principal recommendation made by the League to member states was that nutrition councils or committees should be established in order to achieve the co-ordinated approach which alone could give a correct perspective to all aspects of the problem. Such organisations have already been functioning for some time in many countries.

As announced in previous reports, Parliament voted an amount of £6,000 in 1938 for a nutrition survey of European school children in the Union. The report of this survey was prepared by the Department in February, 1940.

It was always felt, however, that the problem of malnutrition in its complexity required a larger and more comprehensive approach than was possible by a single Department. As a result of representations submitted to the Government, the establishment of a National Nutrition Council in the Union was approved and this was accomplished by the enactment of the Public Health Amendment Act, 1940 (Act No. 14 of 1940).

The Act describes the function of the Council as follows:—

> " The function of the Council shall be to investigate and report to the Minister of Public Health upon all matters relating, directly or indirectly, to the prevention of malnutrition in and the improvement of the diet of the inhabitants of the Union, which in its opinion should be investigated or which the said Minister may refer to it for investigation."

The appointment of members and alternates of members of the Council was announced in Government Notice No. 1024 of 21st June, 1940.

The Council held its first meeting at Pretoria on the 27th June, 1940, when it approved of the appointment of the following standing committees in terms of section *four* of the Act for the purpose of investigating and reporting to the Council upon any matters referred to it by the Council:—

War Emergency Committee,
Research Committee,
Education and Propaganda Committee,
Agriculture and Economics Committee.

One of the urgent questions to be dealt with was the preparation of a diet to keep the Union's troops fit and to safeguard them against disease.

The War Emergency Committee was specially appointed for that purpose, while the remaining three committees are to undertake the Council's long-term functions. On these committees the co-operation of all the important interests have been secured, viz., of medical and health officers, agriculturists, biochemists and sociologists.

The investigation into the dietetic, clinical, sociological and economic aspects of malnutrition which are being conducted by the Universities of the Witwatersrand and Cape Town and the South African Institute for Medical Research, Johannesburg, on behalf of the Department have not yet been completed and the work is being continued.

Water Supplies.

One of the most urgent problems, especially in the coastal areas, is the provision of pure and sufficient water supplies. The frequent occurrence of outbreaks of enteric fever is a matter of deep concern to the Department.

Many of these outbreaks are water-borne owing to human contamination of furrow water which is intended for irrigation purposes but which is also the only source of domestic water.

A sharp outbreak of enteric fever occurred in one area of the Paarl Divisional Council. A special temporary hospital was opened and 28 cases were treated there, while 2 others were admitted to Paarl Hospital and another 4 were attended to in their own homes. Three of the cases died. In addition, 6 cases from other areas were admitted to the temporary hospital.

The provision of pure water for domestic use is imperative. It is realised, however, that in many localities where enteric is a common occurrence, the local authorities are not financially in a position to contemplate the large and expensive schemes for a general supply. The formation of water boards similar to the Rand Water Board would be the ideal solution and, although they are not universally practicable as yet, there are certain areas, such as, for example, the Natal South Coast and similar regions along the Cape coast, which have a large population, especially in the holiday seasons, where an adequate, contant and safe supply is essential.

Holidaymakers and visitors from large local authority areas like the Reef have grown so accustomed to tap safe drinking water that they do not realise the danger at the smaller coastal places where domestic water is often an unfiltered, polluted supply from the nearest dam or river. The potential menace to health from such untreated water is obvious and it is only right that public attention should be drawn to his fact.

Reverting to enteric fever it is emphasised that the disease does not occur unless some focus of infection exists. This focus is, in many instances, a " carrier " who, while not suffering from enteric fever at the time, harbours the bacilli and excretes them intermittently. There is as yet no easy and infallible means of detecting such a " carrier " because of this intermittent bacillary excretion and even when found the individual cannot easily be cured of the " carrier " state. This drawback has made the difficulty a very real one and has given rise to many a problem, the solution of which is still being sought.

In some towns in the Union " carriers " when discovered are given employment in occupations other than food handling where they are not likely to be a danger to the community, and in some cases they are even given double pay as an incentive to keep this employment. " Carriers " have frequently been the cause of water-borne outbreaks in this and other countries, the pollution of a well at Croydon a few years ago being a most illuminating example where infection of a large supply was traced to a single person. The endemic typhoid along the Berg River at the Cape is most certainly water-borne.

Native Health Units.

The first of these units has been established in the Polela District of Natal near Bulwer.

As evident in the body of the report this unit is a new venture having as its object the improvement of Native health, not by the mere provision of treatment facilities, i.e. curative medicine, but by an attempt to rectify the insanitary conditions and the ignorance which are the root of so much Native ill-health.

The achievement of tangible results is necessarily slow owing to the innate conservatism and superstition of a people still almost wholly illiterate, but cumulative evidence over a period of years has proved that when their confidence has been gained they can break away from age-old unhealthy customs and adapt themselves quite eagerly to the newer and improved facilities which are offered them.

Preventable Disease.

A good deal of work has been done during the year, both in the field and in the various laboratories of or closely associated with the Department in connection with a number of serious epidemiological problems. Those that deserve special mention are typhus, tuberculosis, plague, tropical ulcer, malaria, relapsing fever and venereal diseases. More details of this work are given in the appropriate sections of the report and in the various publications where other preventable conditions, of which malnutrition is an outstanding example, are also considered.

The Railways Administration deserves special mention for the progress which is being made in similar spheres of its activity, and while it has not been possible to incorporate the entire report of the Deputy Chief Health Officer (Railways), which is a valuable record of development, various sections on the major health problems such a nutrition, housing, malaria and plague have been included.

Circumstances have necessitated some curtailment of the report this year and several of the newer problems of a specialised nature which received detailed consideration in the annual reports of the past two years have been omitted or only briefly mentioned unless there have been noteworthy developments to justify their inclusion. This does not necessarily mean that nothing has been done in these matters, for the spadework is often hard and tedious and although on the surface nothing dramatic has appeared, the machinery has not stood still in spite of the inevitable braking influence of the unsettled times.

II.—VITAL STATISTICS.

At 31st December, 1939, that is, the middle of the report year, the Census Department estimated the total population of the Union to be 10,250,600, of which 2,134,600 were Europeans. The non-European population was made up of 7,060,800 Bantu, 233,000 Asiatics, and 822,200 Coloureds.

Our statistics concerning the large non-European section of the population are still woefully deficient. The application of accurate figures is indispensable for effective public health administration and hygienic faults which might not otherwise have been apparent or which had been attributed to incorrect causes, can be shown up in a most obvious manner by good records. The lack of sufficient and accurate statistics concerning health matters amongst the non-European greatly minimises the value of South African health statistics because the tables for Europeans reflect the position of only about 20 per cent. of the total population.

The European birth-rate indicated in Tables 1 and 2 was 25·3 per 1,000 and the natural increase or the excess of births over deaths was 15·9, which is slightly higher than the previous year.

The crude death-rate of 9·40 shows a very slight decrease on the figure for 1938.

Heart disease still occupies first place as the cause of death. Cancer comes second, and pneumonia, which is third, accounts for 90·05 deaths per 100,000, a figure which is lower than it has been for the past 20 years. It is not possible to say yet whether this decrease is due to the introduction of the recently discovered drug sulphapyridine.

TABLE 1.—UNION OF SOUTH AFRICA: SUMMARY OF VITAL STATISTICS OF EUROPEAN POPULATION, 1920-1939.

Calendar Year.	European Population (estimated).	Birth Rate per 1,000 of Population.	Death Rate per 1,000 of Population.		Death Rate per 100,000 of Population from				Percentage of Total Deaths, the Cause of which was Medically Certified.	Infantile Mortality Rate (Deaths of Infants under One Year per 1,000 Live Births Registered).	Maternal Mortality Rate (Deaths of Mothers in connection with Pregnancy or Childbirth per 1,000 Live Births Registered).	Survival Rate or Rate of Natural Increase (Excess of Births over Deaths per 1,000 of Population).
			Actual or Crude.	Standardized.*	Diseases of Heart and Circulatory System.	Pneumonia and Bronchitis.	Cancer.	Tuberculosis (all forms).§				
1920............	1,499,911	28·97	11·09	12·15	95·67†	113·87†	58·94†	46·00†	79·78	90·07	4·10†	17·88
1921............	1,519,488‡	28·44	10·41	11·43	102·91	136·15	69·09	58·26	80·76	77·09	4·94	18·03
1922............	1,556,241	27·52	9·48	10·41	97·99	127·24	70·88	47·74	82·96	72·91	5·21	18·04
1923............	1,579,733	26·70	9·77	10·65	108·50	120·72	78·94	46·46	82·77	74·42	5·22	16·93
1924............	1,610,774	26·29	9·62	10·44	123·92	123·79	76·36	51·59	84·74	73·73	4·75	16·67
1925............	1,637,472	26·51	9·39	10·15	128·86	97·04	72·86	52·70	86·45	68·39	5·62	17·12
1926............	1,676,660‡	26·16	9·59	10·28	127·21	113·44	71·18	53·41	87·76	64·82	4·56	16·57
1927............	1,708,955	25·95	9·73	10·34	122·76	110·42	73·20	50·50	89·93	70·62	4·80	16·22
1928............	1,738,937	25·77	10·15	10·69	133·53	127·72	77·52	50·95	89·93	70·49	4·98	15·62
1929............	1,767,719	26·15	9·51	9.98	127·11	104·04	77·44	45·37	90·19	64·22	5·26	16·64
1930............	1,797,900	26·44	9·69	10·08	132·33	112·87	82·62	46·76	91·15	66·84	5·26	16·75
1931............	1,829,300	25·38	9·37	9·56	131·53	103·75	85·55	44·22	90·46	63·07	4·70	16·01
1932............	1,859,400	24·17	9·97	9·98	137·52	113·75	89·06	42·33	90·84	68·57	5·31	14·20
1933............	1,890,300	23·55	9·35	9·27	142·52	100·30	95·33	40·68	91·45	61·01	4·81	14·20
1934............	1,914,700	23·44	9·68	9·55	156·21	94·53	92·39	39·54	91·91	60·79	5·99	13·76
1935............	1,973,700	24·18	10·45	10·28	169·58	131·98	95·76	40·44	92·55	62·81	4·73	13·72
1936............	2,008,700	24·21	9·57	9·50	154·38	106·19	97·28	34·40	92·88	59·06	5·10	14·64
1937............	2,043,700	24·90	10·08	9·66	172·97	113·62	106·57	36·40	93·17	56·57	4·38	14·81
1938............	2,081,400	25·01	9·48	8·93	153·55	102·53	103·44	38·34	94·20	51·69	3·69	15·53
1939............	2,116,500	25·29	9·40	**	170·42	90·05	104·75	36·19	94·32	49·48	3·61	15·88

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* The rate which would have obtained had the age and sex distribution of the population been the same as that of England and Wales at the 1901 census, the standard usually taken for international comparisons.

† Medically certified deaths only. Rates for subsequent years calculated on total deaths registered.

‡ Actual (per census).

§ Includes Miners' Phthisis combined with Pulmonary Tuberculosis.

** Not yet available.

TABLE 2.— SURVIVAL RATE OR RATE OF NATURAL INCREASE AMONG EUROPEANS IN THE UNION PER 1,000 OF THE POPULATION.

Year.	Birth-rate.	Death-rate.	Natural Increase.
1911	32·2	10·4	21·8
1912	32·2	10·3	21·9
1913	31·7	10·3	21·4
1914	30·2	9·5	20·7
1915	29·3	10·3	19·0
1916	29·3	10·2	19·1
1917	29·0	10·3	18·7
1918	28·6	17·2	11·4
1919	26·9	11·9	15·0
1920	29·0	11·1	17·9
1921	28·4	10·4	18·0
1922	27·5	9·5	18·0
1923	26·7	9·8	16·9
1924	26·3	9·6	16·7
1925	26·5	9·4	17·1
1926	26·2	9·6	16·6
1927	25·9	9·7	16·2
1928	25·8	10·2	15·6
1929	26·1	9·5	16·6
1930	26·4	9·7	16·7
1931	25·4	9·4	16·0
1932	24·2	10·0	14·2
1933	23·5	9·3	14·2
1934	23·4	9·7	13·7
1935	24·2	10·5	13·7
1936	24·2	9·6	14·6
1937	24·9	10·1	14·8
1938	25·0	9·5	15·5
1939	25·3	9·4	15·9

TABLE 3.—COMPARISON OF BIRTH, DEATH AND NATURAL INCREASE RATES AMONG EUROPEANS IN THE UNION WITH OTHER COUNTRIES. AVERAGE RATES FOR THREE-YEARLY PERIODS (BASED ON LATEST AVAILABLE INFORMATION).

Countries.	Birth-rate.	Death-rate.	Natural Increase.
Union of South Africa	25·1	9·7	15·4
Holland	20·2	8·7	11·5
Portugal	27·4	16·0	11·4
Canada	20·0	9·8	10·2
Italy	23·0	13·9	9·1
New Zealand	17·3	9·2	8·1
Australia	17·3	9·5	7·8
United States of America	17·2	11·1	6·1
Germany	19·2	11·7	7·5
England and Wales	14·9	12·0	2·9
France	14·8	15·2	*

* Decrease of 0·4.

The infantile and maternal mortality rates are reflected in Tables 28, 29 and 30 on pages 66, 67 and 68, respectively. Table 4 indicates an appreciable decrease in the European infant mortality in the Union, which now takes fourth place on the list.

The reason for this improvement will probably be shown to be largely due to the increase of welfare clinics and to improved nursing services, particularly in rural areas.

The infant death-rate of Natives in the larger urban areas where such statistics are available is appalling. The great majority are due to gastro-enteritis and respiratory diseases in which malnutrition and ignorance undoubtedly play a major part. Enlightenment on the rudiments of cleanliness and infant feeding is essential. Where this has been provided the results are proving most satisfying, and this Department continues to give every encouragement to local authorities to establish clinics for infant and maternal welfare.

Table 4.—Infantile Mortality Rates: Europeans in the Union Compared with other Countries. Average Rates for Three-yearly Periods (Based on Latest Available Information).

New Zealand	33
Holland	38
Australia	39
Union of South Africa	53
England and Wales	57
Germany	63
France	66
Canada	71
Belgium	78
Italy	103
Lithuania	120
Portugal	147

III.—ADMINISTRATIVE MATTERS.

1. Staff.

The staff chart included in this section shows at a glance the departmental organisation.

As pointed out in the last two annual reports the Department has suffered heavy losses by the retirement on superannuation of several senior officers and further losses have to be faced in the near future.

Dr. E. H. Cluver, Secretary for Public Health and Chief Health Officer for the Union, relinquished his post as at 30th June, 1940, in order to assume the directorship of the South African Institute for Medical Research. Whilst appreciative of Dr. Cluver's selection to the post which he now holds, it is pleasing to be able to record that his advice and assistance are still available to the Department as a member of the Council of Public Health.

Dr. Peter Allan, Deputy-Chief Health Officer, Cape Town, was appointed Secretary for Public Health and Chief Health Officer in place of Dr. E. H. Cluver. Dr. A. J. van der Spuy remains at Head Office as Deputy-Chief Health Officer. Dr. H. S. Gear has been appointed Deputy-Chief Health Officer, Cape Town.

The retirement on superannuation of Mr. A. de V. Brunt has been a severe loss. Mr. Brunt was appointed Under-Secretary in October, 1932, and his tenure of the post (which was regarded at the time as an experiment) proved a great success. His unique experience of health work generally made him a most valued officer.

On the retiral of Mr. Brunt in August, 1939, Mr. A. Stuart, departmental Chief Clerk, was appointed Under-Secretary, and Mr. H. F. Cuff, of the Public Service Commission Inspectorate, succeeded Mr. Stuart as departmental Chief Clerk.

Mr. P. I. Phelan was promoted to the post of Accountant consequent upon the retirement of Mr. L. J. Hatch, referred to in last year's report, and Mr. W. J. van der Merwe, of the Union Education Department, was appointed Assistant Accountant.

Other departmental changes in the senior staff during the year under review were:—

Dr. Enid Drennan, Medical Inspector for Maternal and Infant Welfare, resigned to be married in September, 1939, and Dr. Kathleen D. Winterton was appointed in her place.

Dr. G. W. Gale, temporary Medical Inspector at Head Office, was promoted to Assistant Health Officer in November.

Dr. S. L. Kark, who was temporary Medical Officer on the Bantu Nutrition Survey, was appointed as Medical Officer in charge of the Native Health Unit newly established in the Polela District, Natal.

Owing to the war several members of the staff throughout the provinces have been released for active service.

A senior officers' conference was initiated last year with a view to securing uniformity of practice by the various officers of the Department. At these discussions the Secretary indicated generally the trend of departmental policy and the implications of new developments. Health problems arising in the various provinces were similarly put forward for general discussion. Similar conferences will be held from time to time as opportunity offers.

Minister of Public Health (HON. H. G. LAWRENCE).

Minister (Chairman).
Secretary and Chief Health Officer (Deputy Chairman).
Director of Veterinary Services.
Mrs. S. B. Broers.
Messrs. W. J. O'Brien, M.P., and L. C. Serrurier.
Drs. K. Bremer, M.P., A. J. Orenstein, and C. P. Theron.
} *Council of Public Health.*

Secretary and Chief Health Officer (Dr. E. H. Cluver).

Under-Secretary ((A. Stuart).

(c) Deputy Chief Health Officer (Dr. H. S. Gear).

Departmental Chief Clerk (H. F. Cuff).

1 Accountant (P. I. Phelan).

1 Chief Clerk, Gr. II. (R. S. Gordon).

3 Principal Clerks (N. A. G. Reeler, J. Sanders, and W. J. van der Merwe).

4 Senior Clerks.
60 Clerks, Typists, etc.

Sections.

Detached Officers.	Inspection and Special Staff.	Maternity and Child Welfare.	Pathological and Biological Control Laboratories.	Port Health Officers.	District Surgeons.	Leprosy.	Venereal Diseases.	Malaria.	Tuberculosis.	Epidemic and Infectious Diseases (Plague, Typhus, Smallpox, etc.), and Vaccination.	Food and Drugs Adulteration; Habit-forming Drugs.	Local Authorities.	Other Bodies.
Capetown: Deputy Chief Health Officer: (*a*) Dr. P. Allan. Assistant Health Officer: Dr. J. J. du Pré le Roux. Durban: Deputy Chief Health Officer: Dr. F. W. P. Cluver. Assistant Health Officer: Dr. A. L. Ferguson. One Deputy Chief Health Officer and Director of Medical Services, Defence (*b*) (Dr. A. J. van der Spuy). Johannesburg: Senior Assistant Health Officer: Dr. B. M. Clark. S.A. Railways and Harbours: Deputy Chief Health Officer: Dr. C. G. Booker.	Assistant Health Officer (Dr. J. H. Loots). Assistant Health Officer (Venereal Diseases) (Dr. G. W. Gale). Medical Inspector (Dr. N. L. Murray). One Dental Health Officer (Dr. T. Ockerse). One Medical Inspector, Cape Native Territories (Dr. R. J. Smit). Medical Officer Native Health Unit (Dr. S. L. Kark). One Senior Dietitian (Miss G. M. Sedgwick). Two Dietitians. One Ecologist (Mr. D. H. S. Davis). Five Inspectors (4 plague and 1 typhus).	Medical Inspector (Dr. K. D. Winterton). 3 Nurse Lecturers.	Capetown, and Vaccine Institute, Rosebank: (Drs. W. F. Rhodes, R. Turner, I. Gordon and G. R. D. McLeish). Capetown Biological Control Laboratory: (Drs. M. H. Finlayson and H. A. Shapiro). Durban: (Dr. B. Sampson). South African Institute for Medical Research, Johannesburg.	Capetown: (Dr. J. M. Bosman). Durban: (Dr. G. A. Batchelor). Port Elizabeth: (Dr. H. W. A. Kay). East London: (Dr. R. V. S. Stevenson). Simonstown: (Dr. A. B. Bull). Knysna: (Dr. C. F. M. Marnewecke). Mossel Bay: (Dr. J. J. v. Reenen). Port St. Johns: (Dr. G. H. Meiring).	29 Whole-time. 7 Whole-time. (jointly). 345 Part-time. 381 Total.	*Leprosy Advisory Committee:* Secretary and Chief Health Officer (Chairman), Dr. Harvey Pirie. Professor W. H. Craib and Dr. W. F. Rhodes. Drs. A. Pijper, A. J. Orenstein, K. Bremer, M.P. G. W. Robertson. *Institutions:* Pretoria: (Drs. A. R. Davison, H. J. F. Wood, P. A. Thornton and H. Pillemer). Emjanyana: (J. A. Macdonald, and Dr. P. B. v. d. Lith). Mkambati: (H. C. Bellew and Dr. F. S. Drewe). Amatikulu: (F. J. Roach and Dr. E. L. Riemer). Bochem: (J. H. Franz and Dr. H. C. Franz).	Venereal Diseases Advisory Committee, Chairman: Chief Health Officer; Dr. H. Gluckman, M.P., and departmental medical officers. *Institutions.* Rietfontein, Johannesburg: (Drs. J. Daneel and J. Meyer). Kingwilliamstown. Bochem (*d*). Elim (*d*) Jane Furse Memorial (*d*). Several smaller hospitals.	Transvaal: Senior Malaria Officer: (Dr. D. H. S. Annecke). Inspectors and Assistants. Natal: Medical Inspector: Dr. C. A. M. Murray. Inspectors.	Tuberculosis Advisory Committee, Chairman, Dr. P. Allan. *Institutions.* Nelspoort Sanatorium: (Drs. H. Ackermann, P. Scher and C. A. Sleggs). Rietfontein Hospital. King George V Hospital (Drs. B. A. Dormer, J. Friedlander and F. J. Wiles). In addition to these Institutions under the direct control of the Department there is a number of other hospitals where accommodation is available.	Field Staff. District Surgeons. Local Authorities. Magistrates, etc.	Inspectors, Customs, Police, etc. Chemical work done in chemical laboratories of Department of Agriculture at Capetown & Johannesburg. Pharmacist.	247 Municipalities. 92 Village Management Boards. 40 Local Boards. 32 Village Councils. 58 Health Committees. 7 Local Administration and Health Boards. 95 Divisional Councils. 1 Health Board. 153 Magistrates. 5 Mining Commissioners. 730 Total.	Central Housing Board, Chairman, Sir E. N. Thornton. Members: Messrs. R. S. Gordon, F. W. Jameson, J. Lockwood Hall, G. R. Savage, E. Williamson (Assessor Member). J. Sanders, (Secretary). South African Medical Council South African Pharmacy Board. Rand Water Board. National Nutrition Council

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(*a*) Dr. P. Allan is now Secretary for Public Health and Chief Health Officer *vice* Dr. E. H. Cluver, resigned. (*b*) Dr. A. J. van der Spuy is Deputy Chief Health Officer, Pretoria. (*c*) Dr. H. S. Gear is Deputy Chief Health Officer, Cape Town. (*d*) Receives grant-in-aid.

2. District Surgeoncy System.

The district surgeons are doing good work. They are appointed for certain specific duties which, broadly, are defined as follows in their contracts with the Department:—

> Each district surgeon will render all such medical, surgical and public health services as are required of him by the Government in his own area and in emergencies or special circumstances in any neighbouring area where, in the opinion of the Minister or the magistrate, the work can conveniently be done from his headquarters. Save as is otherwise specifically provided in his agreement, all such services shall be entirely covered by his salary.
>
> Unless otherwise specifically provided in the agreement, the services referred to above will include the following:—
>
> (*a*) *To paupers or indigents, prisoners, gaol officials, police, members of the Permanent Defence Force, with their wives and families, and others for whose medical attendance and treatment the Government is responsible.*—All medical, surgical and obstetrical services (excepting such operations—but not excepting ordinary tooth extraction—as are not usually performed by general practitioners) and the furnishing of reports and certificates in connection therewith; also the supply of medicines (excepting cod liver oil, malt extract, patent foods, medical comforts, and similar articles) and dressings.
>
> (*b*) *Medico-legal Work.*—Examination and Certification—in cases referred to the district surgeon by competent authority—of accident and assault cases, cases of mental diseases and defects, including the performance of autopsies and assistance at inquests.
>
> (*c*) Public Health work, either for the Government or for a local authority which has not appointed its own medical officer of health, but desires to utilise the services of the district surgeon: Investigation of infectious diseases, sanitation, housing, malaria, leprosy, venereal diseases, special vaccination, routine public vaccination (for Government only) against smallpox, including, as far as reasonably possible, subsequent inspection and certification of same (at such intervals at headquarters and in other urban areas in his area as the Minister may consider necessary and annually in rural areas—all public vaccinations to be at places and times fixed for the purpose and notified by the magistrate to the public in advance, the district surgeon to co-operate and assist in the carrying out and enforcement of the law regarding vaccination in his area) and such other public health work as may be required of the district surgeon by competent authority.
>
> (*d*) Medical examination of candidates for employment in the Public Service, or for enrolment in the Police or Prisons Service or Permanent Defence Force, and medical boards on persons so employed, and on returned soldiers and members of Union Defence Forces. Medical examinations of recruits for the Active Citizen Force when specially required.
>
> (*e*) Acting when required as assessor or medical arbitrator under the Workmen's Compensation Laws, and the Native Labour Act, No. 15 of 1911, and regulations thereunder.
>
> (*f*) Examinations and inspections under the Factories Act, and medical examinations on behalf of the Labour Department.
>
> (*g*) Medical attendance at Defence Force Camps (including Cadet Camps) in his area or in adjoining areas, when specially required to do so in his capacity as district surgeon on behalf of the Department of Defence.
>
> (*h*) Any other duty within the general scope of the agreement required of him by the Government, or devolving on him as district surgeon under any Act or Regulation, also the keeping of prescribed records and registers, and the furnishing of prescribed annual and other reports and returns.

From time to time criticism is levelled at the Department by members of the public who fail to realise that in terms of his contract the district surgeon is appointed primarily for the services as specified above.

Actually there are only two classes of persons entitled to free medical attention by the district surgeon, viz., (i) certain officials who in their contracts with the Government, are entitled to free medical attendance for themselves and their families, and (ii) paupers as defined.

There is a growing demand for extension of medical services, and a departmental committee reported on a National Health Insurance Scheme in 1936 (U.G. No. 41—1936). The terms of reference of this committee were as follows:—

> "To consider and report upon the practicability of the introduction in South Africa of a scheme of National Health Insurance for the purpose of providing adequate medical advice and assistance to any section of the population for which at present inadequate provision is made, and if such introduction be deemed to be practicable, to make recommendations as to the details of such a scheme, including the benefits to be provided and the nature of the arrangements to be made with members of the medical and pharmaceutical professions."

The committee duly reported that the time was not yet ripe for a state medical service in this country but recommended that a scheme of insurance embracing medical, maternity, funeral and sick pay benefits, applicable to employees in the urban areas of the Union, could be successfully instituted under certain conditions specified in the report, and recommended its early adoption. A summary of the scheme as proposed is to be found in the annual report of this Department for 1937.

It was intended that the scheme should be one of compulsory insurance against the risk of sickness for the benefit of all employed persons (including dependents) of either sex and of all races who are resident in the areas of urban local authorities and are earning not more than £400 per annum.

It was calculated that the annual cost of applying the scheme to persons in urban local authority areas would be £5,331,691 contributed as follows:—

Government	£776,735
Employers	£2,663,315
Employees	£1,891,641

Rural areas were excluded from the recommendations in the report.

Unfortunately it has not been possible to put this scheme into operation, but the Department is fully alive to the fact that sooner or later some scheme will have to be adopted.

With the elaboration of the health organisation for the Union the duties of the district surgeons are becoming more comprehensive and they are expected to take an active interest in the health of their areas. Where necessary they assume the duties of medical officers of health to local authorities not possessing such officers and consequently authoritative knowledge of preventive medicine and the problems of general sanitation are becoming more and more essential. The value of such preventive medicine is slowly being recognised by local authorities throughout the country. The public, too, are becoming aware of it, and it is felt that improved and increased education in the principles of health and its maintenance could become a tremendous stimulus for co-operative effort to eradicate so many of our existing problems, which are problems only because of public ignorance and inertia.

The introduction of the Rural Sanitary Regulations in August, 1939, has called for an increasing number of special reports by district surgeons on general health matters in their areas. The latter have been able to gain valuable assistance and practical knowledge of health requirements from the professional and field officers of the Union Health Department who endeavour to make contact with them whenever possible on their visits of inspection.

Rural Medical Tours.

Periodical tours by district surgeons and additional district surgeons are carried out in 94 districts in the Union under the provisions of section 4 of Act No. 36 of 1927. These tours are authorised in outlying centres where, owing to lack of medical aid, the prevalence of malaria or other disease or special circumstances, it is considered essential to bring the necessary medical aid within the reach of the community. In 88 of the districts these tours are conducted by part-time district surgeons. For several years the provision made for this purpose has been £11,000 and this amount has always been fully utilised.

The annual refresher courses for district surgeons alternating at the Medical Schools in Johannesburg and Cape Town are catering well for their needs in the sphere of public health.

Table 5 summarises the present distribution of district surgeoncies.

TABLE 5.—DISTRICT SURGEONCIES AND ADDITIONAL DISTRICT SURGEONCIES AS AT 30TH JUNE, 1940.

Province.	Whole-time.	Whole-time, but jointly with local authority or public body.	Part-time.			Total.
			On inclusive annual salary.		On annual salary with certain supplementary fees and allowances.	
			District Surgeons.	Additional District Surgeons.		
Cape..............	6	6	—	31	133	176
Natal..............	3	—	—	2	43	48
Transvaal..........	18	1	1	24	50	94
Orange Free State..	2	—	—	15	46	63
UNION.......	29	7	1	72	272	381

The twenty-nine whole-time posts are those at Capetown (2); Durban (3); East London; Port Elizabeth; Pretoria (4) (one at Bronkhorstspruit); Johannesburg (4); Pietersburg (2); Bloemfontein (2); Wynberg; Knysna; Heidelberg (Tvl.); Nigel; Vereeniging; Nylstroom, (2); Rustenburg (2); and De Lagersdrift (District Middelburg, Tvl.).

There has been an increase of two whole-time (Rustenburg and Nylstroom) and three additional district surgeons over last year's total. In 1938 there were only seventeen whole-time posts. The creation of further full-time posts in several areas where Government work has been increased considerably is under consideration.

3. LOCAL AUTHORITIES AND THEIR HEALTH STAFFS.

Eight new local authorities were constituted during the year and a summary classification is given in Table 6.

TABLE 6.—LOCAL AUTHORITIES UNDER THE PUBLIC HEALTH ACT (1919) AS AT 30TH JUNE, 1940.

Province.	Municipalities.	Village Management Boards.	Local Boards.	Village Councils.	Health Committees.	Local Administration and Health Boards.	Magistrates.	Divisional Councils.	Board of Health.	Mining Commissioners.	Total.
Cape.............	138	88	23	—	—	—	33	95	1	1	379
Natal.............	11	—	17	—	24	7	42	—	—	—	101
Transvaal.........	34	—	—	32	34	—	42	—	—	3	145
Orange Free State	64	4	—	—	—	—	36	—	—	1	105
UNION......	247	92	40	32	58	7	153	95	1	5	730

The Department strongly encourages the appointment of whole-time qualified health inspectors, health visitors and medical officers of health wherever the circumstances justify such posts. Their value is evidenced by the rapid improvements which have been noticed in the general aspects of health and sanitation following such appointments. The increase in the number of special clinics and in some cases polyclinics is another pointer to the advance in the outlook on health by local authorities and to the realisation that regular and constant supervision is essential to maintain it.

IV.—WORK OF THE DEPARTMENT.

1. INSPECTIONS, INVESTIGATIONS AND FIELD-WORK.

This work is briefly outlined in the appropriate sections of the report. The emergency work in connection with the formidable epidemic diseases, especially plague and typhus, and with malaria, is constantly going on. Specially trained staff is combating these three endemic problems in the field and an increase in the co-operation of local authorities, public bodies and the public is becoming evident.

Routine systematic inspections and special investigations are being maintained by the professional and field staff throughout the Union in spite of the war conditions prevailing. This work is considerable and all sections of the Department are involved.

2. (*a*) LIBRARY.

The main library is housed at the Head Office, Pretoria, and is being gradually expanded. There are over 400 classified subjects on the shelves and more than 80 journals are received either by subscription, in exchange, or free. The organisation of the library, which, owing to the pressure of other work, has had to be kept in abeyance during recent years, was, however, taken in hand during the second half of the report year. The library is regularly made use of by the various branch offices and institutions of the Department as well as by other bodies which generally are able to offer reciprocal facilities.

(*b*) PUBLICATIONS BY MEMBERS OF THE STAFF.

The following list indicates the articles which were published during the year:—

Dr. E. H. Cluver, Chief Health Officer.

"Symposium on the Need for the Investigation of Human Resources: Population and Health Aspects." *S. Afr. Jour. Science*, Vol. XXXVI, pp. 502-514, Dec., 1939.

"The South African Programme of Nutritional Studies" (with H. S. Gear). *S. Afr. Med. Jour.* 23rd Sept., 1939.

"Aim and Scope of the Nutrition Survey of the Union Department of Public Health." *Race Relations*, Vol. VI ,No. 3, 1939.

"Maternal and Family Welfare." Address at the Annual General Meeting of the Race Welfare Society, Johannesburg, October, 1939. *Sensible Living*, Jan., 1940.

Dr. H. S. Gear, Deputy Chief Health Officer.

"The South African Programme of Nutritional Studies" (with E. H. Cluver) *S. Afr. Med. Jour.* 23rd September, 1939.

Dr. B. M. Clark, Senior Assistant Health Officer.

"Two Interesting South African Typhoid Outbreaks." *S. Afr. Med. Jour.* 23rd Dec., 1939.

Dr. B. A. Dormer, Superintendent, King George V Hospital, Durban.

"Miniature Radiography" (with M. Gibson). *Lancet* 2. 11th Nov., 1939.

"A Portable Laboratory for Field Health Surveys" (with M. Gibson). *S. Afr. Med. Jour.*, Vol. XIV, No. 6, 23rd March, 1940.

"A case of Bronchiectasis and Concomitant Avitaminosis" (with J. Friedlander and M. Gibson). *S. Afr. Med. Jour.*, Vol. XIV, No. 11, 8th June, 1940.

"The Use of Native Health Assistants for Survey Work in Native Reserves." *The Leech*, Vol. 2, No. 1, October, 1940.

"A Case for Diagnosis" (with J. Friedlander and M. Gibson). *The Leech*, Vol. 2, No. 1, October, 1940.

Dr. T. Ockerse, Dental Health Officer.

"The Problem of Dental Caries, with special Referenc to South Africa." *S. Afr. Dental Jour.*, June, 1940.

Dr. M. H. Finlayson, Officer-in-Charge, Biological Control Laboratories, Cape Town.

"A Study of South African Epidemic Typhus Strains and the Protection afforded by the Zinsser-Castaneda Vaccine against Infection with these Strains" (with J. M. Grobler). *S. Afr. Med. Jour.*, 13th April, 1940.

"A Study of Some Properties and Relationships of South African Murine Typhus Strains and the Protective Action of Zinsser-Castaneda Vaccine against South African Murine Typhus" (with J. M. Grobler). *S. Afr. Med. Jour.*, 13th April, 1940.

"South African Typhus, with Special Reference to the Use of an Alum-Precipitated Vaccine." *S. Afr. Med. Jour.*, 22nd June, 1940.

"*Harpactirella Lightfooti* as a Cause of Spider-bite in the Union." With a note on the Biology of *Harpactirella Lightfooti* (Purcell) by R. Smithers. *S. Afr. Med. Jour.*, 23rd December, 1939.

"Virus Diseases in Man in South Africa." Proceedings of International Congress of Microbiology, 8th September, 1939.

"Therapeutic Aspect of Endocrinology." *S.A. Pharmaceutical Journal*, June, 1940.

Dr. H. A. Shapiro, Pharmacologist. Biological Control Laboratories, Cape Town.

"Seasonal Changes in the Ovulation Response of *Xenopus Laevis* to Methyl Testosterone." (1939) *Journal of Endocrinology*, Vol. 1, No. 1, p.1.

"The Effects of Extracts of Human Anterior Pituitary Glands on *Xenopus Laevis*." (1940) *Royal Society of South Africa, Proc.*, March 20th.

Miss Grace Sedgwick, Senior Dietitian.

"The Hospital Dietitian." *S. Afr. Med. Jour.*, 1939. 26th August, pp. 595-597.

"The Practical Application of the Principles of Nutrition." *Jour. S. Afr. Biol. Soc.*, 1940.

Miss Gertrud Riemerschmid.

"The South African Solar Radiation Survey, 1937-38." *Onderstepoort Journal of Veterinary Science and Animal Industry*, Vol. XV, No. 1 and 2, July-Sept., 1940.

Mr. S. J. Richards.

"A Survey of the Ultra-Violet Solar Radiation at Johannesburg." *South African Journal of Science*, Vol. XXXVI, Dec., 1939, pp. 132-149.

3. HEALTH PUBLICITY AND EDUCATIVE WORK.

An important development in the last two or three years has been the establishment of the National Health Education Committee through the co-operation of the South African Red Cross Society. Dr. H. Gluckman, M.P., is chairman of this Committee, and the Department is subsidising it. For further details the annual report of the last two years should be consulted.

A list of the pamphlets published and distributed by the Department and of the films owned by the Department which are available to responsible bodies for exhibition purposes is given hereunder. There has been a wide demand for both pamphlets and films, which is most encouraging. Visual education is becoming increasingly popular and the impetus given to this method of instruction by the Union Education Department through its Film Bureau has assisted the Public Health Department considerably in the call for and dissemination of health propaganda. The South African Red Cross Society, which handles the bulk of the propaganda work, is also rendering most valuable service in this connection.

List of Cinema Films owned by the Department.

Diphtheria.

Diphtheria, 16 mm. (Silent).

How to Prevent Disease (in Science of Life Series), 16 mm. (Silent).

Educational (Suitable for Schools and Evening Classes).

The Science of Life Series (12 reels); 16 mm. (Silent):—

1. How Disease is Spread.
2. How to Prevent Disease.
3. How Plants and Animals cause Disease.
4. Interdependence of Living Things.
5. Reproduction in Higher Forms of Life.
6. Reproduction in Lower Forms of Life.
7. The Beginning of Life.
8. How the Mosquito Spreads Disease.
9. The Fly as a Disease Carrier.
10. Personal Hygiene for Young Women.
11. Personal Hygiene for Young Men.
12. General Personal Hygiene.

The Gift of Life (4 reels), 16 mm. (Silent).

Science of Modern Medicine (3 reels), 16 mm. (Silent).

Body Defences against Disease, 16 mm. (Sound).

The Human Body (8 reels), 16 mm. (Silent):—

The Heart.
The Blood Vessels.
The Respiratory System.
The Digestive Tract (2 reels).
The Urinary System.
Human Development (2 reels).

General Sanitation.

The Fly Danger, 16 mm. (Silent).

Camp Sanitation, 16 mm. (Silent).

The Housefly, 16 mm. (Sound).

Serving the Community, 16 mm. (Silent).

Sewage Disposal, 16 mm. (Silent).

Preventing the Spread of Disease, 16 mm. (Silent).

The Red Army (Bug Destruction), 16 mm. (Sound).

Giro the Germ (2 reels), 35 mm. (Silent).
Giro and his Enemies, 16 mm. (Silent).
London Water Board, 35 mm. (Silent).
Ground Water, 16 mm. (Sound).
The Filter, 16 mm. (Sound).

Home Nursing.

Home Nursing: Routine Procedures, 16 mm. (Silent).
Home Nursing: Special Procedures, 16 mm. (Silent).
Home Nursing: The Bed Bath, 16 mm. (Silent).

Malaria.

How the Mosquito Spreads Disease (in Science of Life Series), 16 mm. (Silent).
The Malaria Menace, 35 and 16 mm. (Sound). (In both official languages.)

Maternity and Child Welfare.

The Care of the Expectant Mother, 16 mm. (Silent).
Normal Breast Feeding, 16 mm. (Silent).
Breast Feeding (Difficult Cases), 16 mm. (Silent).
Your Baby, 16 mm. (Silent).
Around the Clock with You and Your Baby (3 reels), 16 mm. (Silent).
Infant Management (2 reels), 16 mm. (Silent).
Judy's Diary (2 reels), 16 mm. (Silent).
Baby's Bath and Toilet, 35 mm. (Silent).

Nutrition.

Milk—The Master Builder, 35 and 16 mm. (Silent).
Milk (2 reels), 35 mm. (Sound).
The Long Haul versus the Short Haul (Dirty Milk), 35 mm. (Silent).
Drinking Health (Pure Water) (2 reels), 35 mm. (Silent).
The Alimentary Tract, 16 mm. (Sound).
Digestion, 16 mm. (Silent).
Digestion of Food, 16 mm. (Sound).
Food and Growth, 16 mm. (Silent).
Good Foods: A Drink of Water, 16 mm. (Silent).
Good Foods: Bread and Cereals, 16 mm. (Silent).
The Well Balanced Diet, 16 mm. (Silent).
Enough to Eat, 16 mm. (Sound).

Personal Hygiene and Physical Education.

Forming the Habits of Health, 35 mm. (Silent).
The Priceless Gift of Health, 35 mm. (Silent).
If it's Health You're Seeking, 16 mm. (Silent).
How to Live Long and Well, 16 mm. (Silent).
Why Willie was Willing to Wash, 35 mm. (Silent).
Cleanliness: Clean Clothes, 16 mm. (Silent).
Cleanliness: Clean Face and Hands, 16 mm. (Silent).
Confessions of a Cold, 35 and 16 mm. (Silent).
The Mechanism of Breathing, 16 mm. (Sound).
Your Mouth, 35 mm. (Silent).
Tommy Tucker's Tooth, 35 mm. (Silent).
Care of the Teeth, 16 mm. (Silent).
X-ray on Teeth, 16 mm. (Silent).
Vision, 16 mm. (Sound).
The Feet, 16 mm. (Silent).
Posture (2 reels), 16 mm. (Silent).
Carriage (Physical Training), 16 mm. (Sound).
Analysis of Agility Exercise, 16 mm. (Sound).
Physical Education: Infants, 16 mm. (Sound).
Physical Training: Boys, 16 mm. (Sound).
Physical Training: Girls (2 reels), 16 mm. (Sound).

Tuberculosis.

The Story of Papworth (2 reels), 35 mm. (Sound).
Tuberculosis and How it may be Avoided, 16 mm. (Silent).
Jinks, 35 and 16 mm. (Silent).

Venereal Disease.

John Smith and Son (Gonorrhoea) (3 reels), 16 mm. (Silent).
Trial for Marriage (3 reels), 16 mm. (Sound).
Venereal Disease (3 reels), 16 mm. (Silent).
Test for Love (3 reels), 16 mm. (Sound).
Let's Open our Eyes, 16 mm. (Sound).

The series of departmental pamphlets obtainable is:—

"Senecio Disease." (Warning Notice.) No. 166 (Health).

"Food and Health." No. 194 (Health).

"Anthrax." No. 239 (Health).

"Venereal Diseases: Their Prevention and Treatment." No. 248 (Health).

"Instructions to Persons suffering from Gonorrhoea." No. 249 (Health).

"Instructions to Persons suffering from Syphilis." No. 250 (Health).

"Instructions to Native Patients suffering from Syphilis or Gonorrhoea." (In Zulu, Sixosa, Sesutu and Sechuana.) No. 358 (Health).

"Poisoning by 'Stinkblaar' or Thorn Apple (*Datura stramonium* and *Datura tatula*)." Warning Notice, No. 256 (Health).

"Smallpox: Duties and Powers of Local Authorities under Public Health Act, and procedure to be followed in dealing with outbreaks." No. 276 (Health).

"Directions for the Performance of Public Vaccination." No. 279 (Health).

"Plague: Its Control, Eradication, and Prevention." No. 316 (Health).

"Plague Prevention and Rodent Destruction." No. 317 (Health).

"Rodents: Description, Habits, and Methods of Destruction." (W. Powell). No. 321 (Health).

"Houseflies: Their Life-history, Destruction and Prevention, and their Influence on Health." No. 335 (Health).

"Bilharzia (Human Redwater) Disease." No. 339 (Health).

"Snake-bite and its Treatment." No. 348 (Health).

"Influenza." No. 363 (Health).

"Typhoid or Enteric Fever: Its Causes, Spread and Prevention in South Africa." No. 365 (Health).

"Catechism about Typhoid or Enteric Fever." No. 378 (Health).

"Care of the Teeth and Prevention of Dental Disease in Children." No. 368 (Health).

"The Teeth: How to Prevent Decay." No. 379 (Health).

"Typhus or Louse Fever." No. 417 (Health).

"Typhus Catechism." (In Zulu, Sixosa, Sesuto, and Sechuana.) No. 488 (Health).

Consumption: Its Causes, Prevention, and Treatment. No. 439 (Health).

"Malaria Catchism for use in Schools." No. 360 (Health).

"Truths about Cancer." (Published jointly with the National Cancer Association of South Africa.) No. 473 (Health).

"Rabies." (Published jointly with the Director of Veterinary Services, Department of Agriculture and Forestry.) No. 501 (Health).

Malaria Pamphlet No. 1: "Malaria Control with the description of the Life-history of the Malaria Parasite and the Habits of the Mosquito Vector." No. 527 (Health).

Malaria Pamphlet No. 2: "Directions for the Prevention and Treatment of Malaria and Blackwater Fever." No. 198 (Health).

"Pail Latrines." No. 580 (Health) and 586 (Health).

"Pit Privies." No. 585 (Health).

4. LABORATORIES.

The work done by the two Government Laboratories at Cape Town and Durban and that carried out on behalf of the Government at the South African Institute for Medical Research, Johannesburg and Port Elizabeth, is shown in Table 7.

Table 7.—Pathological Laboratories: Analyses and Examinations, Year ended 30th June, 1940.

Particulars.	Laboratories.		South African Institute for Medical Research.	
	Capetown.	Durban.	Johannesburg.	Port Elizabeth Branch.
Specimens Examined for—				
Government Departments—				
Agriculture	2	—	(*a*)	(*a*)
Customs and Excise	51	—	—	—
Defence	1,574	182	4,183	328
Interior (Mental Hospitals, etc.)	856	777	2,236	1,156
Justice	1,696	215	1,714	256
Prisons		289	2,618	23
Mines (including Miners' Phthisis)	2	—	17,666	—
Posts and Telegraphs	1	—	—	—
Public Health (including Leper Institutions)	10,643	6,895	75,571	9,247
Public Works	1	—	—	(*a*)
South African Railways and Harbours	299	1,315	—	(*a*)
Other Government Work	—	52	363	29
General Hospitals (Provincial)	5,579	26,404	51,574	15,277
Local Authorities	48,248	6,404	9,242	33,256
Medical Practitioners	13,652	14,635	14,980	2,305
Other Governments or Administrations	734	274	6,484	11
Others	—	—	25,741(*b*)	13
Total	83,338	57,442	212,372	61,901
Manufactures and Issues—				
Autogenous Vaccines ... c.c.	—	—	25,675	3,600
Bacterial Vaccines (stock) ... c.c.	—	—	826,928	(*d*)
Tuberculin Dilutions ... c.c.	—	—	—	45
Sera (various), Bacterial Filtrates ... c.c.	—	—	824,625	(*d*)
Anti-rabic Vaccine ... c.c.	14,825	—	—	—
Chaulmoogra Oil Preparations ... c.c.	40,000	—	—	—
Smallpox Vaccine—Calf Lymph (prepared at Vaccine Institute, Rosebank) .. tubes	2,513,000(*f*)	—	418,784	550
Others ... doses	829,600(*e*)	—	94,269(*c*)	—
Attendances at Courts of Law by Members of Staff	250	1	3	1
Total Days' Absence entailed by such attendances	125	2	15	7

(*a*) Included in other Government work.

(*b*) Includes 25,501 examinations for the Mining Industry.

(*c*) Oral vaccines.

(*d*) Included in Johannesburg figures.

(*e*) Iodized ethyl esters (329,600 c.c.) and chick membrane lymph-smallpox vaccine (500,000 tubes).

(*f*) 2,151,128 tubes issued.

5. Biological Control Laboratories.

There was a slight increase in the number and range of products examined in the laboratories.

On 18th September, 1939, three cases of encephalitis following sulpharsphenamine injections of Native syphilitics were reported. Samples of the preparation involved submitted to toxicity tests in the Biological Control Laboratories, Cape Town, were found to possess undue toxicity, failing to pass the test for toxicity of sulpharsphenamine preparations as laid down in the Therapeutic Substances Regulations, as amended, published under Government Notice No. 1131 of 1935, and the British Pharmacopoeia, 1932.

Action was taken to recall issues of the batch and to prevent further distribution and sale.

One hundred and seventy-one samples of therapeutic substances were examined and the results are summarised in Table 8.

TABLE 8.—EXAMINATIONS CARRIED OUT UNDER THE THERAPEUTIC SUBSTANCES REGULATIONS, YEAR ENDED 30TH JUNE, 1940.

Name of Product Examined.	Manufactured in Union.	Imported into the Union.	Number unsatisfactory.
Bacterial Vaccines	58	11	1
Schick Test Toxin	3	—	—
Diphtheria Prophylactic	8	—	1
Tuberculin	3	—	—
Diphtheria Antitoxin	7	2	1
Tetanus Antitoxin	7	2	—
Arsphenamines and Derivatives	—	16	2
Insulin	—	12	—
Pituitary (Post. Lobe) Extract	—	10	—
Sterilised Surgical Sutures	—	22	—
Sex Hormones and Sex Hormone preparations	—	1	—
Antivenomous Serum	9	—	3
TOTAL	95	76	8

The number of licences issued under the same regulations are indicated in Table 9.

TABLE 9.—LICENCES ISSUED UNDER THE THERAPEUTIC SUBSTANCES REGULATIONS (GOVERNMENT NOTICE NO. 1131 OF 1935).

Therapeutic Substance.	Manufacturing Licences.			Import Licences.			Research Licences.			Vitamin Permits.		
	Issued 1939–40.	Cancelled 1939–40.	In Force 30/6/40.	Issued 1939–40.	Cancelled 1939–40.	In Force 30/6/40.	Issued 1939–40.	Cancelled 1939–40.	In Force 30/6/40.	Issued 1939–40.	Cancelled. 1939-40.	In Force. 30/6/40.
Antitoxic and anti-bacterial sera	—	—	2	4	3	11	2	—	11	—	—	—
Antigens and bacterial vaccines	3	1	15	5	4	15	2	—	11	—	—	—
Arsphenamines and arsphenamine derivatives	—	—	—	1	3	5	2	—	11	—	—	—
Insulin	—	—	—	—	4	11	2	—	11	—	—	—
Pituitary (Post. Lobe) Extract	—	—	—	4	6	12	2	—	11	—	—	—
Sterilized Surgical Ligatures and Sutures	—	—	—	2	1	8	2	—	11	—	—	—
Sex hormones and sex hormone preparations	—	—	—	11	3	15	—	—	—	—	—	—
Vitamins and vitamin containing preparations	—	—	—	5	2	5	—	—	—	9	—	16
Antivenomous Sera	—	—	—	1	—	1	—	—	—	—	—	—

The results of examinations carried out by the Laboratory under the Food, Drugs and Disinfectants Act are shown in Table 10. Examinations of samples of tincture of strophanthus again revealed a high rate of unsatisfactory preparations of this substance.

TABLE 10.—EXAMINATIONS CARRIED OUT UNDER THE FOOD, DRUGS AND DISINFECTANTS ACT, NO. 13 OF 1929.

Name of Product.	Number Examined.		Number Unsatisfactory.	
	1938–39.	1939–40.	1938–39.	1939–40.
Digitalis Powder	—	—	—	—
Tincture of Digitalis	35	16	1	—
Tincture of Strophanthus	36	27	14	7
Adrenaline B.P.	1	—	—	—
TOTAL	72	43	15	7

6. PORT HEALTH ADMINISTRATION.

The international situation following the declaration of war in September, 1939, between Britain and Germany brought about a marked diversion of shipping traffic. Italy's entry into the war diverted even more vessels to the South African routes and consequently the Port Health Authorities at Cape Town and Durban in particular have been kept exceedingly busy in the latter part of the report year. For strategic reasons the usual health radio messages have had to be abolished and the unannounced arrival of ships has at times led to unavoidable congestion which complicates the inspections by a limited staff. However, the Port Health arrangements are operating very satisfactorily despite the increased demands.

At a conference of Port Health Officers and the Deputy Chief Health Officer (Railways) in June, 1939, the hitherto undefined work of these officers with regard to harbour sanitation and associated matters was discussed and a satisfactory basis for future health control arrived at. The areas of the ports were clearly defined and the responsibility for the supervision of health and sanitary matters is now the sole responsibility of the Port Health Officer who advises the local System Manager in these matters or brings to his notice any problems arising therefrom.

Further progress was made towards achieving a uniform system of hygienic water supply to shipping at all Union ports. European watermen, who have been tested to exclude carriers of disease, now perform the work under the technical supervision of the Port Health Officers. At Port Elizabeth, East London and Durban improvements in equipment have been effected.

No case of cholera, plague or yellow fever occurred in vessels arriving at South African ports, but smallpox on four vessels from East African, Red Sea or Indian ports necessitated quarantine and other appropriate measures being taken in Durban, whereby possible outbreaks were effectively obviated.

The regular flying boat service from Europe ceased after Italy entered the war. Prior to that 74 craft arrived in Durban during the year. At present a weekly service from Durban to Sydney via Cairo is being maintained. Each flying boat is disinfected with aircraft pyagra, the whole procedure being completed in eight minutes. It has not been necessary to quarantine any passengers from suspected yellow fever areas during the year, but because of the abundance of *Aedes* mosquitoes and a suitable reservoir host in the bush monkeys of Durban, no relaxation of the strict surveillance of incoming aircraft is permissible.

Table 11 outlines the health measures carried out at the Union ports.

TABLE 11.—PORTS OF THE UNION: HEALTH MEASURES DURING THE YEAR ENDED 30TH JUNE, 1940.

Particulars.	Capetown.	Durban.	Port Elizabeth.	East London.	Mossel Bay.	Knysna.	Port St. Johns.	Simonstown.	Port Nolloth.	Total.
Vessels dealt with	2,112	1,444	774	605	153	17	—	27	119	5,251
Cases of infectious or communicable diseases dealt with	623	747	—	2	—	—	—	—	—	1,372
No. of Vessels involved	185	189	—	2	—	—	—	—	—	376
Disinfections and fumigations—										
Vessels	49	72	—	4	—	—	—	—	—	125
Consignments of second-hand clothing and other articles	232	205	5	—	—	—	—	—	—	442
Deratizations under International Sanitary Convention—										
No. of Vessels Deratized and Certificates Issued	16	66	—	—	—	—	—	—	—	82
No. of Exemption Certificates Issued	48	80	—	—	—	—	—	—	—	128
Rats Destroyed on Vessels and in Dock Area	2,422	4,496	2,414	1,271	—	—	—	—	—	10,603

V.—INFECTIOUS AND PREVENTABLE DISEASES.

1. Notifications.

Table 12 shows the numbers of cases of infectious diseases reported during the year. The totals for the previous year are also given for comparison. It must be borne in mind, however, that many cases, particularly amongst the Natives, are never seen by a medical practitioner and are, consequently, not notified.

Table 12.—Notification of Diseases by Medical Practitioners during the Years Ended 30th June, 1939, and 30th June, 1940.

Disease.	Year Ended 30th June, 1939.	Year Ended 30th June, 1940.										
	Union.	Union.	Cape Province, excluding Transkei.		Transkei.		Natal.		Orange Free State.		Transvaal.	
	Total.		European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.
Anthrax	71	65	3	18	—	1	2	5	—	18	6	12
Diphtheria	3,480	3,050	1,273	524	7	8	299	111	66	23	640	99
Encephalitis, Infective	21	30	9	10	—	1	3	1	—	—	4	2
Enteric or Typhoid Fever	3,558	2,835	400	814	20	107	74	401	89	155	261	514
Erysipelas	428	404	82	63	1	3	28	5	12	4	149	57
Lead Poisoning	6	2	2	—	—	—	—	—	—	—	—	—
Leprosy	657	776	3	48	—	222	—	155	—	57	5	286
Malta Fever	9	14	1	3	—	—	1	—	—	—	4	5
Meningitis, Epidemic Cerebro-spinal	702	808	56	186	1	6	10	32	2	13	122	380
Ophthalmia, Gonorrhoeal	107	144	6	38	—	4	2	62	—	5	6	21
Ophthalmia Neonatorum	640	578	54	242	1	16	2	34	4	30	107	88
Plague (for detailed list of cases and deaths, see Table 18)	77	47	2	4	—	9	—	—	3	25	—	4
Poliomyelitis, Acute	37	62	11	20	—	—	4	3	2	1	19	2
Puerperal Fever, including Puerperal Sepsis	564	600	61	158	1	22	7	73	4	11	98	165
Rabies	2	2	1	1	—	—	—	—	—	—	—	—
Scarlatina or Scarlet Fever	1,945	2,040	515	38	6	4	160	8	87	3	1,200	19
Smallpox (for detailed list of cases and deaths, see Table 19)	408	681	—	—	—	1	—	10	2	102	2	564
Trachoma	85	136	11	35	—	11	—	7	—	—	3	69
Tuberculosis	13,171	15,162	611	5,334	1	4,109	120	2,085	25	179	236	2,462
Typhus Fever (for detailed list of cases and deaths, see Table 24)	1,273	841	12	88	2	533	4	80	—	62	2	58
Totals	27,241	28,277	3,113	7,624	40	5,057	716	3,072	296	688	2,864	4,807

2. ANTHRAX.

This disease, which is primarily endemic amongst our cattle, affects more human cases per annum than some of the other widely known infections. There have been 583 notified cases in the past ten years, of which 158 were Europeans. This year 65 were notified—11 Europeans and 54 Natives.

The great majority of cases in this country suffer from cutaneous lesions and occur chiefly amongst farmers and farm labourers who unwittingly handle infected carcasses or diseased meat and skins. The mortality is fairly high and this is due usually to the virulence and rapidity of progress which is characteristic of the condition. Consequently delay of even a day in reporting for medical attention may prove fatal.

Although Swiss investigators discovered the great therapeutic value in anthrax of the arsenical drug Salvarsan as far back as 1916 and Dr. A. Pijper, of Pretoria, confirmed its value over 20 years ago, it is not as well known as it deserves to be. The arsphenamines appear to be specific in combating this disease and, because of their availability in every hospital and district surgeon's consulting room, have superseded Sclavo's serum almost entirely. The newer arsphenamines are less toxic than Salvarsan and in doses of 0·45 or 0·6 gm. for the average adult are well tolerated.

The effect of the drug in reasonably early cases is dramatic and excision of the "malignant pustule" is contraindicated and no longer warranted.

3. BILHARZIASIS OR SCHISTOSOMIASIS.

The distribution of this disease remains confined mainly to a large portion of the Transvaal, Natal and the eastern coastal belt of the Cape, north of East London. The *Schistosoma haematobium* which causes urinary bilharzia is far commoner than the *S. mansoni* (intestinal bilharzia) in the Union but the latter has been reported from time to time and several cases of the double infection are known.

The Transvaal Bilharzia Committee continues to carry on the major portion of the work against the disease, but there is nothing outstanding to report this year except the projected mobile unit for which plans have been fully developed but which, for financial reasons mainly, has not yet come into being.

Sustained propaganda and continuous training of children in the schools and of the public in health matters are undoubtedly having a beneficial effect. That persons far removed from affected areas are becoming conscious of the major preventable diseases is evidenced by the numerous letters to this Department and to health departments of local authorities asking for advice and precautions to be taken when going on holiday or visiting areas where these diseases are prevalent. This is a most encouraging development and one which the Department wishes to extend, for the prevention of most diseases lies with the public itself and any increased interest shown in such matters must be enthusiastically sponsored.

4. DIPHTHERIA.

The position in regard to diphtheria throughout the country as a whole shows no satisfactory improvement.

The disease attacks about one-tenth of the European child population of the Union; of those attacked about one-tenth die and many more are permanently disabled. Not enough advantage is being taken by the public of the protection, especially for young children, given by present-day immunisation; nor does it seem to be realised that this method of immunisation should be instituted, not when an outbreak has already occurred, but as a truly preventive measure.

This method of immunisation requires three or at least two injections given at intervals of two to three weeks, and the resultant immunity, which is lasting, takes several more weeks to develop.

The single injection of antitoxic serum given to close contacts during an outbreak only affords protection for two or three weeks and thereafter the child is as susceptible as before. Particular mention is made of this distinction in order to overcome the erroneous, and most unfortunate, belief which is so prevalent that a single injection of antitoxic serum confers a lasting immunity. On the other hand it is again stressed that two or three small injections of the suitable immunising agent *will* confer an immunity which persists for years and that the public should take full advantage of the facilities now available to reduce the incidence and serious after-effects to a minimum. In this connection attention is again directed to the fact that the Department refunds to local authority half the cost of the material used.

Three thousand and fifty (3,050) cases were notified this year, which is almost double the figure for any year between and including the years 1930-1937. Last year's total was 3,480.

5. ENTERIC FEVER.

This malady shows a fair decrease according to the number of recorded cases this year. There were 723 fewer cases than the previous year but the total of 2,835, of which 844 were Europeans, is nevertheless high.

In Natal enteric heads the list of notifiable diseases reported and though most of the cases were sporadic in occurrence four outbreaks accounted for 40 cases. An analysis of the distribution of all reported cases in this province shows that the great majority of them occurred in the densely populated districts where the population is most mixed and most highly industrialized. Thus the districts of Lower Tugela, Inanda, Durban, Pinetown, Umbumbulu, Umzinto, Camperdown and Pietermaritzburg had in all a total of 350 cases. The total population for these eight districts (1936 census) is over 650,000. Two-thirds of the total European population of the province, and two-fifths of the non-European population live in these eight districts, where the average density is over 250 per square mile as compared with an average density for the whole province of just over 64 per square mile.

There were 74 European cases out of a total estimated European population of 200,000 and 401 non-European cases out of a total estimated non-European population of 1,500,000.

The incidence of the disease amongst non-Europeans is very much greater than would appear from these figures due to defective notification. It is still, unfortunately, true that the majority of Native sufferers from enteric diseases are not seen by medical practitioners but by Inyangas (herbalists) and witch-doctors.

It must be borne in mind that there is hardly a particle of food consumed by Europeans throughout Natal that is not first handled by Native or Indian domestic servants. The importance of the part played by the non-European enteric carrier has been repeatedly emphasised, and the necessity for improved living conditions—including water supplies and sanitation—for non-Europeans is obvious.

In the other provinces there was one large milk-borne outbreak, with several deaths, at Kimberley which was traced to a carrier in the dairy involved.

A combination of preventive sanitary precautions and prophylactic immunisation has been widely adopted, although in some Native areas the latter is the only practical procedure at the present time.

A summary of the notifications of enteric is given below:—

TABLE 13.—ENTERIC OR TYPHOID FEVER: DISTRIBUTION OF CASES REPORTED DURING THE YEAR ENDED 30TH JUNE, 1940.

Area.	European.	Non-European.	Total.
Cape Province (excluding Transkei)	400	814	1,214
Transkei	20	107	127
Natal	74	401	475
Orange Free State	89	155	244
Transvaal	261	514	775
TOTAL	844	1,991	2,835

TABLE 14.—ENTERIC OR TYPHOID FEVER: NOTIFICATIONS AND INCIDENCE IN CERTAIN LOCAL AUTHORITY AREAS DURING THE YEAR ENDED 30TH JUNE, 1940 (ARRANGED IN ORDER OF INCIDENCE RATE)—EXCLUDING CASES RETURNED AS "IMPORTED".

Local Authority.	Notifications.			Incidence per 1,000 of Population.		
	European.	Non-European.	Total.	European.	Non-European.	All Races.
Umtata.....M.	12	38	50	5·11	11·90	9·02
Alice.....M.	1	19	20	1·34	8·57	6·75
Prince Albert.....M.	8	4	12	6·01	3·51	4·85
Molteno.....M.	—	12	12	—	4·73	3·25
Cradock.....M.	8	20	28	2·17	3·59	3·02
Heilbron.....M.	—	10	10	—	4·07	2·50
Aliwal North.....M.	4	13	17	1·56	2·56	2·22
Burghersdorp.....M.	4	6	10	1·94	2·15	2·06
Kroonstad.....M.	5	18	23	0·94	2·24	1·72
Kimberley.....Bd.H.	28	40	68	1·87	1·62	1·71
Queenstown.....M.	3	25	28	0·45	2·17	1·53
Alexandra.....H.C.	—	22	22	—	1·31	1·31
Uitenhage.....M.	6	17	23	0·63	1·53	1·12
Paarl.....M.	2	14	16	0·23	1·44	0·86
Worcester.....M.	—	10	10	—	1·46	0·80
Germiston.....M.	9	50	59	0·30	1·09	0·78
Roodepoort-Maraisburg...M.	5	30	35	0·40	0·87	0·75
Hercules.....M.	2	10	12	0·37	0·94	0·74
Springs.....M.	21	35	56	0·83	0·44	0·53
Boksburg.....M.	9	17	26	0·52	0·47	0·48
Durban.....M.	42	70	112	0·45	0·43	0·43
Bloemfontein.....M.	8	15	23	0·33	0·49	0·42
Krugersdorp.....M.	5	19	24	0·24	0·45	0·38
Cape Town.....M.	54	64	118	0·34	0·41	0·37
Benoni.....M.	6	25	31	0·25	0·40	0·36
Johannesburg.....M.	78	113	191	0·27	0·46	0·36
Pretoria.....M.	22	15	37	0·29	0·36	0·31
East London.....M.	8	7	15	0·35	0·25	0·30
Pietermaritzburg.....M.	4	9	13	0·19	0·35	0·27
Brakpan.....M.	3	13	16	0·14	0·31	0·25
Port Elizabeth.....M.	7	15	22	0·13	0·27	0·20

M.= Municipality. Bd. H.=Board of Health. H.C.= Health Committee.

6. LEPROSY.

The report for the year ended 30th June, 1939, reviewed the policy of the Department during the preceding 15 years, i.e., since this Department took over the administration of leprosy. From this review it was concluded that the Department's policy had up to this point been progressive and successful.

In July and August of the year under review Dr. E. Muir, of the British Empire Leprosy Relief Association, visited the Union and was given facilities to inspect our leper institutions. It is gratifying to note that he also is satisfied that the Department's policy has been a wise one and his views are ably summed up in the following paragraph:—

> "In the Union, the degree and nature of compulsion has been determined largely by the resistance of certain classes of lepers to voluntary segregation and by the importance which the community sets upon the removal of sources of infection. It has also been determined by the ability and willingness of the community to pay the price. There seems little doubt that if the present system is persisted with it will succeed in the end, and, while offering a few suggestions for improvements, I consider that on the whole this system is the best for South Africa."

The adoption of the method of classification recommended by the recent International Leprosy Congress at Cairo is urged by Dr. Muir in view of the confusion which is bound to arise from the retention of varying forms of nomenclature. This matter, together with the other recommendations made in the report, is receiving attention and the Department takes pleasure in recording its appreciation of Dr. Muir's criticisms and helpful advice.

The following tables summarise the position of leprosy in the Union, and the number of discharges, in Table No. 16, shows that the high standard of institutional work has been maintained during the past year:—

TABLE 15.—LEPER INSTITUTIONS: PATIENTS THEREIN ON 30TH JUNE, 1940.

Institution.	Europeans.		Native.		Mixed Coloured.		Asiatic.		TOTAL.		
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	Persons.
Pretoria	56	33	483	240	59	22	5	4	603	299	902
Mkambati	—	—	108	87	—	—	—	—	108	87	195
Emjanyana	—	—	367	309	—	—	—	—	367	309	676
Amatikulu	—	—	290	182	—	—	—	—	290	182	472
Bochem	—	—	55	46	—	1	—	—	55	47	102
TOTAL	56	33	1,303	864	59	23	5	4	1,423	924	2,347

TABLE 16.—LEPROSY: FIRST ADMISSIONS, RECRUDESCED CASES, DISCHARGES AND DEATHS, YEAR ENDED 30TH JUNE, 1940.

Institution.	Admissions for first time.	Recrudesced.	Discharged.	Died.
Pretoria	339	22	262	94
Mkambati	60	12	72	22
Emjanyana	202	31	152	46
Amatikulu	145	17	104	39
Bochem	32	1	10	2
TOTAL	778	83	600	203

TABLE 17.—LEPROSY CASES REMAINING IN THEIR OWN HOMES ON 30TH JUNE, 1940.

	Certified and Awaiting Removal to Leper Institution.	Home Segregated.	Discharged from Leper Institutions.		Total.
			Still under Surveillance.	Released from Surveillance.	
Cape Province (excluding Transkei)	1	2	133	536	672
Transkei	12	2	720	1,064	1,798
Transvaal	1	2	629	936	1,568
Natal	11	—	300	665	976
Orange Free State	1	1	138	198	338
UNION	26	7	1,920	3,399	5,352

These tables are self-explanatory and provide a useful record of the distribution of the cases.

With better transport facilities cases of leprosy discovered in Natal are now transferred direct from their homes to the Amatikulu Institution.

The Leper Isolation Block on Salisbury Island, Durban, is no longer used except for occasional cases discovered in Durban itself.

Leprosy Research.

A study of the effect of certain heavy metals on tuberculosis is being undertaken at the King George V Hospital, Durban, and the experiment has been extended to a number of cases of leprosy in the Leper Institution at Amatikulu, Zululand. It is, however, still too early to report on this work. At Pretoria, in addition to routine treatment, Fouadin and Mercurochrome have found a place in the treatment of the reactionary phase of the disease. Prontosil and M. & B. 693 have been found of value in cases suffering from " Dikkop " or " Pseudoerysipelas ". With the co-operation of the South African Institute for Medical Research group antigenic therapy is being tested out. Attempts to culture the *Mycobacterium Leprae* are at present being made and there is some promise from cultures taken at a certain nodular stage of the disease, i.e., during *erythema nodosum leproticum*. Controlled experimental blood transfusions were found to be of no value. Routine treatment is still by means of chaulmoogra oil or its esters.

7. MALARIA.

In connection with this yearly menace to parts of Natal and the Transvaal a great deal of credit is due to the efforts and co-operation of local authorities and the numerous malaria committees established in the rural areas. They have, by taking on the responsibility of anti-malarial measures in their areas afforded tremendous help to this Department and have thereby liberated our field staff to carry out more extensive supervision wherever this is necessary.

In both provinces the preventive measures have undoubtedly played a very large part in keeping the incidence down to mild proportions this year.

(*a*) *Control in Natal and Zululand.*

The climatic conditions which have an important bearing on the incidence of malaria from year to year varied greatly during the year under review.

In the spring and early summer good, soaking rains fell throughout the province producing a heavy cover of vegetation and maintaining a steady flow in all the large rivers.

From January to early May drought conditions prevailed over the greater part of the flat coastal areas, but in the upland catchment areas feeding the larger rivers average to heavy rainfall occurred. As a result of the abundant upland rains a copious flow of water in the rivers intersecting the province was maintained and pool formation was prevented. At the same time owing to the prevailing drought on the flat coastal areas during the critical period from January to April, conditions favourable to vector breeding were restricted to local streams.

Early in May, 10 to 14 inches of rain fell within three days, flooding all low-lying areas and causing severe damage to road and railway communications in the north coastal areas of the province. These storms created conditions which made anti-larval control impossible over large areas, but by intensifying and maintaining systematic anti-adult control an increase in the incidence of malaria was prevented.

The breeding of *A. gambiae*, the chief vector in this province, although widespread in its distribution, was less prolific than last year, and the number of adult mosquitoes infesting human habitations showed a corresponding decrease. Owing to the drought on the coast breeding of *A. funestus* occurred in some small local streams farther south than usual, but not in sufficient numbers to be of any practical importance.

Larvae and adult mosquito specimens sent to Durban for identification during the past two years are shown hereunder.

In all the tables that follow comparative records for the past two years 1938-1939 and 1939-1940 only will be given. Details for previous years were tabulated in the Annual Report 1938-1939.

Season.	*A. gambiae.*		*A. funestus.*		*Other Species.*		Total.
	Larvae	Adults.	Larvae.	Adults.	Larvae.	Adults.	
1938–39........	5,604	13,843	16	1,314	46,601	1,405	68,783
1939–40........	3,731	7,293	10	668	52,339	1,669	65,710

The incidence of malaria during the past year has been the lowest recorded since the control organisation came into being, and according to the older residents on the Zululand coast it is the lowest since this area was opened up for European settlement.

The number of *positive* human blood slides examined in 1938-1939 at the Government Laboratory, Durban, was 449. In 1939-1940 the positive slides numbered only 135.

This reduction in positive blood slides has coincided with a progressive increase in the areas, both European and Native, brought under closer control.

Reports by the Native Malaria Assistants operating in the Native Reserves of Natal and Zululand, apart from the low veld sections of the Ubombo and Ingwavuma districts, where the indigenous Natives are tolerant to the disease, confirm the low incidence of the disease as disclosed by laboratory examinations.

Season.	*Natives Visited.*	*Sick.*	*Deaths.*
1938-39	380,003	1,557	40
1939-40	336,335	428	13

As a result of the useful propaganda carried out by the Native staff practically no opposition is now encountered from the kraal Natives. On the contrary, cases of sickness are usually brought to the notice of the Native Assistant in the area, with the result that where malaria is suspected immediate measures to prevent its spread can be taken.

The seasonal methods of control are now standardised and embrace anti-larval and anti-adult measures. The interval between the applications of larvicides and insecticides varies according to the time of the year and the prevailing climatic conditions. During the warmer months which coincide with the rainy season weekly larvicidal oiling is carried out, but during the colder and dry season a fortnightly application is sufficient to control breeding.

The policy of applying larvicides at fortnightly intervals on known foci of *A. gambiae* breeding during the colder and drier months when breeding places are reduced to a minimum has been extended annually. The results indicate that in sections where these winter measures have been carried out vector breeding has been greatly retarded and is sometimes even entirely absent during the following malaria season.

The interval between application of insecticides in districts where both forms of control are carried out is governed by the breeding and the adult infestation rate of dwellings and varies from once to thrice weekly according to local conditions.

In the Native areas anti-larval measures are undertaken only in sections which are either surrounded by or adjacent to statutory controlled European areas. The scattered nature of kraals and the extensive breeding grounds formed by uncontrolled herds of cattle during the rainy season make effective anti-larval control economically impossible. Systematic weekly hut spraying with insecticide is the only economic form of control under such circumstances. The reduction in the incidence of malaria in areas where heavy house infestation of adult vectors occurs annually has been most marked since the introduction six years ago of this anti-adult method of control.

In an endeavour to assess the effect of these measures on the infection rate in mosquitoes, dissected adults collected from adjacent controlled and uncontrolled sections have been examined during the past two years. The result of these dissections is shown in the following tables:—

Controlled Area.

	A. funestus.		*A. gambiae.*		Total.		Percentage infected.
	No. dissected.	No. infected.	No. dissected.	No. infected.	Dissected.	Infected.	
1938–39........	564	Nil	540	2	1,104	2	0·18
1939–40........	57	Nil	285	Nil	342	Nil	Nil

Uncontrolled Area.

1938–39........	52	1	690	10	742	11	1·48
1939–40........	119	1	258	5	377	6	1·59

The various units comprising the malaria control organisation in this province and the staff employed are summarised below:—

	Trained.		Untrained.
	European.	Native or Indian.	Native or Indian.
Local Authorities (40)....................	52	40	115
Malaria Committees (21)....................	29	12	612
Voluntary Groups (8)....................	2	10	24
S.A. Railways..............................	9	—	36
Union Health Department................	9	54	86
	101	116	873

Control measures in the Native Reserves are undertaken by the Department by European inspectors stationed at Durban, Stanger, Eshowe, Empangeni, Mtubatuba, Nongoma, Greytown and Vryheid. Each European inspector has a staff of Native malaria assistants, and Native sprayers are engaged according to requirements. In this work the willing assistance of the Magistrates and Native Commissioners is greatly appreciated, more especially in overcoming obstacles or obstruction in Native areas. The Department also supervises and co-ordinates the work carried out by urban local authorities, rural malaria committees and voluntary organisations throughout the province.

The following inspections in connection with malaria control were carried out by the departmental inspectorate:—

Local Authorities	198
Malaria Committees	186
Voluntary Groups	36
Native Reserves	847
Farms	635

In the Native Reserves 12,000 gallons of anti-malaria oil and 9,000 gallons of insecticide were used, and 22,000 huts were brought under systematic weekly anti-adult control. In addition, 50,000 huts were sprayed out at intervals during the season.

Quinine is made available by the establishment of depots at convenient centres throughout the malarious Native areas.

The Department of Native Affairs continues to co-operate by planting gum trees (*Eucalyptus saligna*), which serve as a means of drying out sections known to act as prolific sources of *A. gambiae* breeding. In this manner more than 500 acres representing numerous prolific *gambiae* breeding foci have been permanently eliminated.

The excellent co-operation experienced in this province makes for smooth efficiency in the carrying out of preventive measures and the marked decline in the incidence of the disease has been greatly facilitated by the willing response of all concerned in the organisation of the campaign.

(*b*) *Transvaal.*

During the past season, speaking generally, the incidence of malaria has been normal, and even mild in some parts, but the occurrence of several cases of malaria undoubtedly contracted on the Witwatersrand early in 1939 proved interesting and unusual. From the evidence obtained, it would seem that infected mosquitoes, probably imported by motor-car from known malarious regions, were responsible for the infection of these local cases. Motorists would be well advised, therefore, to spray their cars with suitable insecticide on leaving malarious areas. The mosquitoes harbour in the vehicles at night chiefly, and tend to settle in the secluded places behind the dashboard and even under the bonnet, where the additional warmth seems to lure them in great numbers.

Drs. J. H. S. Gear and B. de Meillon, of the South African Institute for Medical Research, have described the occurrence of a case of malaria due to infection with *Plasmodium ovale*. This case is of interest because it was a primarily acquired infection in an individual who had not previously resided in a malarious district and the theory that *P. ovale* is a form of *P. vivax* altered by long residence in the human host could not therefore be held.

The field work in the Transvaal centres round the Malaria Research Station at Tzaneen in the Letaba district which is the headquarters of the Senior Malaria Officer, three health inspectors, two technical laboratory assistants, clerical staff and six Native spotters. In addition, there are seven sub-stations operated by health inspectors (at Lydenburg, Nelspruit, Louis Trichardt, Potgietersrust, Pietersburg, Nylstroom and Groblersdal), four health visitors (operating in the magisterial districts of Pietersburg, Nylstroom and Middelburg, Potgietersrust and Louis Tirchardt) and 75 Native malaria assistants working in twelve Native Commissioner areas. The European health visitors are doing invaluable work in their respective areas and besides pure malarial prophylaxis and post malarial supervision, they are successfully introducing the elements of sick nursing, mothercraft, child welfare, ante- and post-natal work into the homes of the rural population. A complete liaison exists between these health visitors and itinerant school nurses to the benefit of the communities as a whole.

The health inspectors combine general health and sanitary problems with their anti-malarial routine where required and the Native malaria assistants are becoming more and more valuable in disseminating useful health propaganda in the less accessible Native areas and urging submission to treatment and the reporting of infectious diseases like leprosy, tuberculosis, typhus, enteric and venereal disease to the health authorities.

During the year the Department's new malaria film, "The Malaria Menace", which was released early in 1940, was shown in all the Northern Transvaal centres equipped with a talkie projector, including—

Tzaneen
Louis Trichardt
Zebediela
Naboomspruit
Nelspruit
Duivelskloof
Pietersburg
Nylstroom
Lydenburg
Barberton
Messina
Potgietersrust
Warmbaths
Sabie
Pretoria.

It has been well received by authoritative critics of varied outlook wherever it was shown.

The silent malaria film was shown at Schildpadfontein to the Native school-teachers' class, Pietersburg (Native Agricultural Show), and Nelspruit location.

The importance of the Tzaneen Malaria Research Station as a training and teaching centre was again demonstrated during the year under review.

The annual European teachers' class, which included twenty nurses and health inspectors working in malarious areas, was held in January. In February a class was held for district surgeons. In May five candidates for the Diploma in Tropical Medicine and Hygiene attended a special course. In March the annual class of Native teachers was held at Schildpadfontein and twenty-eight attended.

Prevention and Control.

During the past season new methods for the distribution of anti-malarial supplies were tried and proved very successful. The handling of equipment by all magistrates in malarial areas in the Transvaal has consolidated the scheme, and in addition malaria control by local authorities has become an accepted fact throughout the malarial areas in the province.

(*c*) *Railway Areas.*

In the Transvaal there was a marked decrease in malaria, there being ninety-five cases compared with the previous year's total of two hundred and nine. In Natal the incidence was twenty-eight compared with twenty-seven the previous year.

An interesting feature is that in Natal 70 per cent. of the reported cases occurred amongst staff residents in non-malarious areas, and in the Transvaal 30·3 per cent. of the cases were resident in uncontrolled areas. These may be regarded as relapse cases and were governed by factors which lie entirely beyond the control of the health staff. Furthermore, of the remaining forty-seven cases reported in staff resident in controlled areas in both provinces combined, only twenty-two cases or 46·8 per cent. are definitely known to be fresh infections.

In South-West Africa, ever since the inauguration of anti-malaria measures in this territory, the results have been progressively good, and the reduction to four cases only in the past season is the best ever obtained.

The rainfall throughout the system was considerably more than that experienced during any of the years succeeding the 1933 floods. In the southern section of the territory the precipitation was so great that it gave rise to flood conditions, causing washaways and dislocation of the train service. In spite of these abnormal conditions, the organisation was successful in reducing the malaria incidence to this new low record.

Train spraying, as in the past, was given careful attention. No trains were permitted to proceed from malarious areas into non-malarious areas before being sprayed. The spraying usually devolves upon the train staff, but certain trains, such as those which terminate in malarious areas and the bi-weekly Native train (bombella) from Ressano Garcia to Johannesburg, are sprayed by the health staff. No complaints were received from the travelling public.

The increasing co-operation with other Government departments, local authorities, mining estates, landowners and other bodies, makes for increased efficiency, division of work, lessening of individual financial and labour burdens and has brought about improved control in greater areas than before to the mutual advantage of the Railways Administration and the surrounding authorities.

The introduction into malarious areas of bridge guards, the Essential Services Protection Corps, necessitated the adoption of appropriate measures to protect these men who, due to the nature of their duties, were necessarily openly exposed to malaria infection. Strict instructions were issued and in addition the men are equipped with screened huts, mosquito nets, repellants, insecticide and spray pumps. These measures proved quite effective since only one member contracted the disease.

8. PLAGUE.

During the year forty-seven cases of human plague with twenty-six deaths were reported. They are summarised in Table 18.

TABLE 18.—DISTRIBUTION OF HUMAN PLAGUE AMONG THE DISTRICTS OF THE THREE AFFECTED PROVINCES DURING THE YEAR ENDED 30TH JUNE, 1940.

PROVINCE.	EUROPEAN.		NON-EUROPEAN.		TOTAL.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape :						
Calvinia	1	1	1	1	2	2
Glen Grey	—	—	9	4	9	4
Mafeking	1	—	—	—	1	—
Middelburg	—	—	1	1	1	1
Uitenhage	—	—	2	2	2	2
5 Districts	2	1	13	8	15	9
Natal :	—	—	—	—	—	—
Transvaal :						
Vereeniging	—	—	4	2	4	2
1 District	—	—	4	2	4	2
Orange Free State :						
Heilbron	3	1	8	6	11	7
Philippolis	—	—	4	3	4	3
Ventersburg	—	—	3	3	3	3
Vredefort (Kopjes)	—	—	10	2	10	2
4 Districts	3	1	25	14	28	15
UNION	5	2	42	24	47	26

The majority of the outbreaks occurred in the northern Orange Free State in the Heilbron-Kopjes area. A few more outbreaks took place in the Native areas, ending the epidemic which reached rather serious proportions last year. There were several outbreaks in the Philippolis area on the southern boundary of the Free State associated with an epizootic in Namaqua gerbilles (*Desmodillus auricularis*). A striped mouse (*Rhabdomys pumilio*) from this area upon examination was found to have died of plague.

The remaining outbreaks were single ones for the most part; three deserve mention. The outbreak in the Brandvlei area to the north of Calvinia pointed to a flare-up of infection that had been dormant for several years; that to the south-west of Mafeking suggested that an epizootic was in progress in the Kalahari. The third was an outbreak to the north of Vereeniging at Daleside. This is the closest to Johannesburg that human plague has been known to occur and it resulted in a fairly detailed survey of farms outside the Johannesburg municipal boundaries being carried out during April and May, 1940. The results of this investigation may be briefly summarised as follows:—

(1) The domestic rats are widely distributed over the district but, as in 1935 and 1936, have suffered a marked diminution in numbers over a wide area, amounting in some instances to a complete disappearance of these rodents from premises where conditions as to food supply and harbourage are exceptionally favourable.

(2) As in other parts of the Union, there is evidence that epizootics among domestic rats have occurred independently of mortality among gerbilles.

(3) The manifestations of mortality among gerbilles are similar to those met with in areas in which recurrent epizootics of plague have occurred among wild rodents over a period of years.

The outbreak of human plague on the very threshold of the Reef towns calls for constant vigilance on the part of local authorities.

Most of the cases were of bubonic plague, with a few septicaemic cases. There was one pneumonic outbreak in June on the farm Zwartwal in the Heilbron district.

Inspections and Surveys.

Dr. Fourie, plague consultant, concluded his tour of inspection and survey of the coastal region from East London to Cape Town. Inspections were made at all the larger towns in the coastal belt. He was accompanied by the ecologist and a rodent inspector of the Department.

It was found that in nearly every place inspected abundant harbourage and food supply were available for the rat population. There was, however, evidence, particularly in the Eastern Province, that rats (*R. rattus*) were not as numerous as would have been expected from the amount of harbourage and food available. This was taken to indicate the probability of plague infection amongst them. In each town recommendations were made to the authorities to take active steps to cope with the menace by the appointment or training of anti-plague staff.

The inspection of urban, rat-infested areas was concluded by a survey of conditions in the Cape Town docks and by inspections of towns in the wheat growing districts of the Cape to the north of Cape Town. A rapid survey of the state of the veld rodents in the plague-free region to the north and east of Cape Town was made and conditions compared with those found during the previous autumn which were reported upon last year. In the sandy wheat growing areas between Vredenburg and Piquetberg and at other points to the south evidence of a reduction in the numbers of gerbilles was found. The cause of the mortality was sought by collecting fleas from deserted and partially deserted gerbille warrens and inoculating them into susceptible animals. Some 2,000 fleas in nine batches from six different localities were tested by the Government Pathologist at Cape Town. No pathogenic organisms were isolated. It may be stated here that the method of inoculating emulsions of fleas has been tested out in a plague area and positive results have been obtained. If plague had been the cause of mortality the collections made in this area would almost certainly have revealed the presence of *B. pestis*. It seems, therefore, that an explanation other than an epizootic due to plague must be sought.

During the field surveys the close relationship between mole-rats and gerbilles impressed itself. Three species of mole-rats were therefore tested for susceptibility to plague by the Government pathologist at Dr. Fourie's suggestion. It was found that all three species: *Bathyergus*, *Georychus* and *Cryptomys*, died in two to three days after inoculation with a virulent plague strain. They must therefore be regarded as possible agents in the spread and maintenance of plague in spite of the difference between their flea-fauna and that of gerbilles.

In the sandy parts of the Ermelo and adjoining districts in the Eastern Transvaal, gerbilles (*T. brantsi*) have increased phenomenally. In the year under review they reached such proportions that they became a serious threat to the livelihood of the farming community, to say nothing of the possibilities of plague breaking out amongst them. An entomologist from the Department of Agriculture investigated the area and drew attention to the seriousness of the position and pointed out that only by energetic and immediate action could loss to crops be avoided. At meetings of farmers the best methods of destruction by poisoning, etc., were demonstrated by a rodent inspector of the Department on several occasions. The campaign of poisoning was furthered by the energetic work of the agricultural extension officer. Good work was done and many farms were partially cleared, although initial losses to the maize crop were serious, as in many instances it was impossible to plant the maize successfully without first destroying the gerbilles in the lands. Winter fodder crops such as oats, wheat, rye, etc., were often seriously attacked and a considerable acreage was destroyed. There has been no evidence of mortality amongst the gerbilles and the outlook for the coming planting season is still serious in spite of extensive poisoning.

Training.

Dr. Fourie returned to Cape Town and conducted a month's course of training in antirodent methods with special reference to urban conditions. Anti-rodent personnel from Cape Town and neighbouring districts attended the course.

In connection with the Reef survey it was intended that local departmental officers and health inspectors should attend the course. It is especially necessary that one or more of the medical officers be trained to assume responsibility for the plague field work in the future should the need arise. Owing to bad conditions the matter is being held in abeyance.

The permanent employment of an ecologist is a fundamental necessity for the elucidation of many of the country's epidemiological problems. The Council of Public Health agreed with this view.

Research.

The investigation of the biology of the rodents and fleas concerned in the transmission of plague in the Free State maize growing areas carried out at Holfontein was terminated in November. A Plague Research Station with laboratory, office and animal breeding facilities was established at Rietfontein Hospital, Johannesburg, and field operations were centred some 50 miles north of Holfontein in the Rooiwal area to the south of Kopjes.

Here plague was active amongst the veld and domestic rodents and human cases had occurred. The Rooiwal area thus provided a centre for the third phase of the investigations—the study of the course taken by an epizootic of plague. Work at the station at Johannesburg was devoted mainly to maintaining stocks of fleas and laboratory-bred wild mice (*Mastomys coucha*) for experimental work, to analysing the results of the work at Holfontein and to the examination of some of the plague material from the Rooiwal area. The field assistant was stationed permanently in the Rooiwal area while the ecologist divided his time between the Field and Research Stations.

The routine examination of plague material and the identification of fleas have, as in the past, been carried out by the South African Institute for Medical Research. The value of these services to the ecological investigations has been inestimable for without this help it would have been impossible for the work to have produced the results it has done.

Two strains of multimammate mice (*Mastomys coucha*), one from the Transkei obtained in October and one from Rooiwal obtained in April formed the nucleus of the breeding stock. The mice are housed in special nest-box cages, which appear to give them the right conditions for breeding. The monthly turnover of weaned animals had reached approximately 100 at the end of June and plans were then being prepared to use them in experimental work on plague in co-operation with the South African Institute for Medical Research.

Stocks of *Xenopsylla brasiliensis* and *X. eridos* were maintained in the underground insectary.

The more important advances in the field work may be summarised:—

(1) The method of isolating *B. pestis* from fleas, widely used in other parts of the world, was tested out and found to give satisfactory results. The fleas are collected in sterile tubes containing 2 per cent. saline. At the laboratory they are washed in normal saline, ground up in a mortar and inoculated as a suspension into a test animal. Strains of *B. pestis* have been isolated from the following species of flea:—

   (*a*) *Dinopsyllus ellobius* from a nest of a water-rat (*Otomys irroratus*) and from a gerbille nest.

   (*b*) *Xenopsylla eridos* from the bodies of dead gerbilles, their nests and burrows—both occupied and deserted.

   (*c*) *X. brasiliensis* from the bodies of dead rats, the floor of a stove in which rats had died and from the floor of a Native hut in which a case of plague had been contracted.

(2) *B. pestis* has also been isolated from the bone marrow (of the femur) of a putrid gerbille. The method has been widely advocated in other countries as a most valuable method of isolating *B. pestis* from carcasses too long dead to yield the organism by standard methods of examination.

(3) The measurement of the relative density at four-weekly intervals of the gerbille population by means of burrow counts has been standardised on a unit area basis. Gerbille-infested localities are marked out in 50-yard numbered squares so that all groups of warrens in a colony are demarcated. Four-weekly counts of the numbers of open holes are made. These are blocked in and the numbers opened the following day are again counted. The first count provides a measure of the amount of activity that has taken place in four weeks and the second count the amount in one night. As there appears to be a fairly constant relation between the number of active holes and the number of gerbilles these counts provide a picture of the relative density of the gerbille population and when a fuller knowledge of the relation between holes and gerbilles is obtained density can be expressed in terms of gerbilles. Some 360 50-yard unit areas have been marked out covering 30 gerbille colonies. The rate of decline has been as high as 40 per cent. for one four-week period.

(4) The isolation of *B. pestis* from fleas has provided a method of determining the length of time infected fleas can remain in deserted warrens. Knowing the time at which a warren is deserted from the census observations regular collections of fleas for bacteriological examination should contribute further to our understanding of the way in which plague persists in the veld. So far plague has been proved to survive in one of the marked warrens for one month after desertion, but longer periods are expected to be proved.

As opportunity permitted, rodent inspectors of the Department took part in the field work in the Rooiwal area in order to familiarise themselves with the field methods in use so that they could use them in their investigations of outbreaks and in their surveys. As a result some valuable information has already been collected on the species of fleas concerned in specific plague outbreaks.

The Health Department of the Port Elizabeth Municipality at the suggestion of the ecologist carried out a two-months' sample-trapping experiment of domestic rats. The objects of the experiment were (1) to provide information on the relative density of the rat population in a series of representative sample areas of the city, (2) to provide material for economical bacteriological examination, and (3) to provide advance information of the degree of rat-infestation for the use of the gassing gangs and rodent-proofing operations. The system of advance trapping was advocated and put into operation by Dr. Fourie during the epidemic in 1938 (see Annual Report 1937-38). The modifications introduced in this experiment were designed to provide some measure of the rat density and so to give some indication of the effectiveness of the anti-rodent operations from year to year. A series of 34 areas, each consisting of several blocks of buildings, in the South End, Central, North End, Korsten and New Brighton wards of the city were selected and each was trapped with 100 break-back traps for one night. The trapping was preceded by careful inspection as before. The fleas from the rats were collected in saline and pooled in five lots, representing the five wards and sent to the Port Elizabeth branch of the South African Institute for Medical Research for inoculation. None of the batches of fleas was found to harbour *B. pestis.*

Anti-rodent and Plague Measures on Railway Premises.

Whilst human infection was more widespread compared with the previous year, the number of outbreaks and the incidence of plague were less along the railway systems. Although only one case actually occurred on railway property, others occurred in such close proximity that they necessitated unremitting vigilance on the part of the railway health staff. In all outbreaks close collaboration took place between the administration and the Union Health Department. Rodent catches have increased considerably. This was due to the intensification of anti-rodent measures, particularly against veld rodents, on all systems owing to the more widespread distribution of plague in the past year. The greatest increase, 10,655 rodents, is reflected against the Cape western system and is accounted for chiefly by catches during the demolition of many old harbourages in the course of the new harbour construction.

On the Natal and Transvaal eastern systems numerous complaints were received of damage done to goods by rats. In most instances the complaints emanated from stations where goods sheds had been defectively proofed. Since definite skill and experience are required for the proofing of a goods shed, a fact which the ordinary carpenter does not fully appreciate, it is essential that this work, as has previously been advocated, should be carried out under the direct supervision of the health staff. This would obviate waste on ineffective ratproofing, the recurring cost of frequent disinfestation and damage to goods. Co-operation with outside bodies is improving, but there are still some concerns which are disinclined to incur the necessary expenditure required for proper anti-rodent measures. In some instances, in order to evade the issue, co-operative societies have removed their sheds from railway premises to just outside the boundary to avoid what they regard as more stringent control than that required by some local authorities. Actually this argument does not lessen their obligations since the plague regulations promulgated under the Public Health Act are applicable throughout the Union. It is imperative in the interests of the country as a whole that the rodent control of grain transport and export, in plague areas particularly, be improved and maintained, and the fullest co-operation by private bodies has to be insisted upon.

9. Relapsing Fever.

Dr. D. Ordman of the South African Institute for Medical Research, extended his study of relapsing fever following on the outbreak near Postmasburg, which was detailed in the last annual report. In conjunction with Dr. S. Annecke, Senior Malaria Officer, the distribution of the vector *Ornithodorus moubata* was investigated in the northern Transvaal. These ticks were found in relatively large numbers in locations and kraals in the areas inspected. Districts in the eastern Transvaal were also visited and the Native habitations were found to be heavily infested with this tick. In view of the widespread distribution of the vector it is surprising that more cases of the disease have not been recorded, although in some areas the Natives have known of it since before the Boer War.

An attempt is being made to prevent spread from proven cases and precautionary measures such as the provision of tick-free housing for Natives on farms and especially in large labour areas is advocated.

Treatment by Neoarsphenamine has proved effective and a single dose of 0·45 gm. for a young adult administered when the temperature is rising is often sufficient to effect a cure. An alternative of 0·3 gm., 0·45 gm., and 0·6 gm., given at intervals of three and then six days has also been tried successfully.

10. SMALLPOX.

The number of cases reported was slightly higher than for any of the past six years but the disease has fortunately maintained its mild nature and the death-rate for the year is less than 1 per cent. The vaccination campaign still continues and it is pleasing to note that the number of applications for exemption is steadily falling. The compulsory vaccination of infants and unvaccinated persons is still one of the most dramatic achievements of preventive medicine in reducing the incidence of any single disease in this country.

Table 19 summarises the distribution of cases.

TABLE 19.—SMALLPOX: CASES AND DEATHS REPORTED DURING THE YEAR ENDED 30TH JUNE, 1940.

Province.	Number of Districts in which Outbreaks Occurred.	European.		Non-European.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape	1	—	—	1	—	1	—
Natal	4	—	—	10	1	10	1
Orange Free State	5	2	—	102	2	104	2
Transvaal	18	2	—	564	3	566	3
UNION	28	4	—	677	6	681	6

The majority of cases occurred in the Transvaal.

Table 20 shows the year's record of vaccination statistics.

Table 20.—Vaccination of Infants and Children in the Classes of the Population which Register Births, Year ended 30th June, 1940.
(These figures do not include Revaccination of the 12-year old Children.)

Particulars.	Cape.		Transvaal.		Natal.			Orange Free State.	Union.
	Cape District.	Remainder of Province.	Rand Area.	Remainder of Province.	Durban.	Pieter-maritzburg.	Remainder of Province.		
Births entered in Vaccination Register...........................	13,291	41,360	16,584	12,767	2,971	754	1,818	4,803	94,348
Successfully vaccinated....................................	6,738	5,044	3,114	3,862	1,413	470	827	2,054	23,522
Insusceptible to vaccination................................	6	78	112	48	88	26	21	56	435
Vaccination postponed owing to illness........................	115	471	840	844	426	80	302	995	4,073
Previously had smallpox....................................	1	1	5	—	—	—	—	—	7
Deaths of infants under two years registered...................	3,011	6,958	1,269	698	233	57	139	249	12,614
Exempted under Section 10, Act No. 15 of 1928...............	38	50	247		160	22	37	66	620

11. TUBERCULOSIS.

The present position regarding the hospital accommodation for tuberculotics, European and non-European, and the future policy of the Department is outlined in the introduction to this report.

The total yearly notification is gradually increasing and this is undoubtedly due to the improved health services which afford better diagnostic methods. Fifteen thousand cases were reported this year.

In the Transkei, which has a population of 1,300,000, there were 3,126 pulmonary, 95 bone and 120 glandular cases of tuberculosis notified. In addition 145 cases were repatriated from the mines out of 89,105 Natives recruited.

In *Natal* several surveys were instituted and the conclusions reached tend to prove that the largest incidence of the disease in the non-European is in the urban, semi-urban, industrialised and sugar-belt areas of the province.

The present provision for each section of the community is outlined below:—

(*a*) *Tuberculosis in Natives.*

(i) Work has continued on the lines of last year's report. Contact has been maintained with mission authorities throughout Natal with a view to providing beds for Native cases of tuberculosis in their own areas.

Nongoma Mission Hospital caters for at least 60 cases, and the magistrates of the following districts have been interviewed and requested not to send cases to Durban, but to forward them to Nongoma:—

Eshowe, Mtunzini, Empangeni, Hlabisa and Nongoma.

Mahlabatini has its own mission hospital and deals with cases in this area.

Similar plans were made for southern coastal areas, and the magistrates again requested not to send infectious cases to Durban.

Cases arriving in Durban were sent to King Edward VIII Hospital, but were being discharged to the Depot Hospital. They filtered into the town spreading infection and it was felt that something ought to be done to prevent this uncontrolled spread of the disease.

(ii) The following arrangements have now been made to control cases, for which the Department is responsible:—

(1) Beds at the Depot Hospital, totalling 100, were made available for the receipt of advanced untreatable communicable cases.

(2) Beds at McCord Zulu Hospital, totalling 60, were made available for the reception of treatable communicable cases.

McCord installed a modern 4-valve X-ray plant for radiological control, and secured the services of a thoracic surgeon.

During the year some 60 artificial pneumothoraces were commenced at this hospital, and the thoracic surgeon cut adhesions and did phrenic nerve excisions. This hospital, therefore, now offers a complete treatment service for pulmonary tuberculosis, including thoracic surgery, thereby giving the suitable case in the Bantu a chance of recovery.

(3) King Edward VIII Hospital: Owing to overcrowding, the authorities decided to abandon treatment of cases of tuberculosis.

(4) In order to sort out the cases and determine which cases were treatable and which not, and also to decide for which cases the Department was responsible, the Medical Superintendent, King George V Hospital, visits King Edward VIII Hospital twice weekly.

There he holds a clinic at which all the cases of pulmonary tuberculosis are presented, and the untreatable cases admitted to the Depot Hospital, and the treatable to McCord Zulu Hospital.

The Medical Superintendent visits McCord Zulu Hospital once weekly and superintends treatment of the cases, lectures and staff, does rounds with the Native aids, and reads the X-ray plates.

Arrangements have also been made for visits to the Depot Hospital for the supervision of cases in that institution.

(*b*) *Tuberculosis in Europeans.*

King George V Hospital caters for all European cases of tuberculosis in Natal.

The various local authorities have been urged to build up tuberculosis schemes for controlling the disease but, up to date, Pietermaritzburg is the only city with any comprehensive plan for dealing with this disease.

The Corporation of Durban appointed a tuberculosis officer in the person of its Deputy Medical Officer of Health, and decided to build a new infectious diseases hospital in order to release beds at Congella (the site of the present Infectious Diseases Hospital) for its Native cases of tuberculosis. It also decided to have a scheme of clinics, including a mobile X-ray apparatus for miniature radiography.

In spite of the war, and even because of the war, it is all the more necessary that an attempt be made to control an infectious disease of the nature of tuberculosis, and the Corporation should be urged to continue its scheme.

(*c*) *Tuberculosis among Coloureds.*

King George V Hospital caters adequately for this section of the community.

However adequate, treatment is mostly in vain owing to the personal habits of the Coloured people, and the lack of " follow-up " facilities.

(*d*) *Tuberculosis among Asiatics.*

There are approximately 30 beds available in Natal for the treatment of tuberculosis in Asiatics and this number ir definitely inadequate.

Survey Work (*Health and Nutrition, Tuberculosis*).

A survey of tuberculosis and endemic goitre was undertaken during the year at location No. 2, Loskop area, Estcourt District, Natal.

In this area there were 48 cases of endemic goitre in 1,000 of the population. Actually much higher percentages of goitre are obtained in other districts of the berg. The goitres range from the single hyperplasia of the gland in young persons (girls), to massive tumours the size of pumpkins in older people. It is common in the male sex and seems to follow the type of endemic goitre seen in hilly regions in other parts of the world.

Tuberculosis has a low incidence in these remote country districts, not attributable to the climate, but to the widely scattered population.

Surveys were also made at the Golden Valley Citrus Estate at Muden, where 1,193 persons were examined and only two cases of pulmonary tuberculosis were found.

This is in keeping with all other surveys, which tend to prove that the largest incidence of tuberculosis in the Native in Natal is in the urban, semi-urban, industrialised and sugar-belt sections of the province.

The other factors which are constantly associated with a rise of the incidence of the disease are overcrowding and underfeeding.

A survey was made in the Umbumbulu area, which is bordering on the industrial area of Durban. Here, out of 1,000 persons, 12 were found to be suffering from tuberculosis, an incidence of over 1 per cent. as compared with 0·25 per cent. and lower in the berg districts.

Studies were also made in Native methods of food production and preparation, and of wild mfino plants, of wild fruits and roots and of methods of preparing kaffir beer.

A beginning was made of a study in the health of employees of sugar estates and a wide programme of work on this subject was drawn up for the next year.

A complete clinical survey of 1,000 Indian school children is under way and, in addition, comparative tuberculin tests were done on two separate groups of about 100 boys each, in order to evaluate the efficiency of the Tuberculin Patch Test (as made and kindly supplied by the South African

Institute for Medical Research). One group of boys was given the Mantoux Intradermal Tuberculin Test with 0·1 c.c. P.P.D. 1/3 2nd strength, and had the Tuberculin Patch Test applied. The other group was tested with 0·1 c.c. Koch's Old Tuberculin intradermally, and had the Patch Test applied. The results of this investigation clearly showed the accuracy of the Patch Test, there being practically a 100 per cent. correlation between the Mantoux Intradermal Test and the Tuberculin Patch Test.

In April, 1940, two officers of the hospital staff carried out a Tuberculin Survey on the scholars at Adam's Mission on the South Coast, Natal. The Tuberculin Intradermal Test was employed, using 0·1 c.c. P.P. 1/3 2nd strength. In all, 355 tests were done—74 females and 281 males.

The total number of Tuberculin Positives was 220 (62 per cent.), being made up of 55 positives in females (74 per cent.) and 165 positives in males (59 per cent.).

Government Tuberculosis Hospitals.

Further details of the work done at each of the three (Nelspoort, Durban and Rietfontein) Government Tuberculosis Hospitals are provided in the tables that follow and in the short notes that amplify them. Surgical progress is most marked at the new King George V Hospital at Durban, which because of its newness, equipment and convenient situation, makes major surgery possible. Nelspoort is less fortunately situated, and suitable cases have still to be sent to Cape Town for similar operations. All three hospitals are equipped with modern X-ray plants and the facilities for carrying out artificial pneumothorax treatment.

Health education in hospital and instruction in the routine precautions to be taken against the spread of infection is an important item which is gaining the support and co-operation of patients.

The assistance provided by the Red Cross Society, the Education Department, a great many of the larger local authorities and voluntary associations in propaganda work is proving a great asset for the dissemination of elementary principles of health throughout the country.

King George V Jubilee Hospital for Tuberculosis.

The original bed state was distributed among the various races as follows:—

European	35
Coloured	20
Indian	21
Native	63
TOTAL	139

But very few natives have been admitted as other accommodation was used. The following table reflects the admissions for the year:—

TABLE 21.—ADMISSIONS, DISCHARGES AND DEATHS AT THE KING GEORGE V HOSPITAL FOR TUBERCULOSIS, DURBAN: YEAR ENDED 30TH JUNE, 1940.

Race.	Patients in residence at 1/7/39.			Patients admitted during year.			Patients discharged during year.			Patients died during year.			Patients in residence at 30/6/40.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
European.............	30	16	46	70	39	109	44	30	74	17	5	22	39	20	59
Coloured.............	22	14	36	42	21	63	30	13	43	17	11	28	17	11	28
Indian...............	1	—	1	32	14	46	12	2	14	5	4	9	16	8	24
Native...............	—	—	—	1	1	2	1	—	1	—	—	—	—	1	1
Chinese..............	—	—	—	—	1	1	—	—	—	—	—	—	—	1	1
TOTAL..........	53	30	83	145	76	221	87	45	132	39	20	59	72	41	113

M—Male. F—Female. T—Total.

Total Admissions.........	221
T.B. minus group.........	16
T.B. plus group........... (159 Stage III)	180
Non-T.B. group...........	25
TOTAL.........	221

Average Stay of Patients.	
European.................	140 days.
Non-European............	158 days.

Surgical Therapy (Including Artificial Pneumothorax).

The facilities for this essential treatment have been greatly augmented.

A thoracic surgery team has gradually been evolved consisting of one surgeon, two medical assistants, theatre nursing staff, anaesthetist, physician, cardiologist and throat, nose and ear surgeon.

In order that the work should improve and be successful, it is essential that this team be kept constant. Any change of personnel creates a weak link in the team, and is therefore undesirable.

It is interesting to note that no case has died as a result of a thoracic operation. The following list indicates the number and range of operations undertaken at this hospital.

ARTIFICIAL PNEUMOTHORAX THERAPY.

	T.B. Minus Group.		*T.B. Plus Group.*	
	No. Attempted.	No. Successful.	No. Attempted.	No. Successful.
Group 1	1	1	1	1
Group 2	1	1	13	11
Group 3	—	—	47	36
TOTALS	2	2	61	48

Other Operations.

	Total done.	
Adhesion cutting	12	Total successful 10.
Phrenicectomy	35	As part of A.P. 31. Independent therapy 4.
Thoracoplasty	8	No. of patients 6.
Bronchoscopy	5	
Lipiodol Investigations	127	Inpatients 66. Outpatients 61.
Miscellaneous operations	4	Ischio Rectal Abscesses.
	1	Therapeutic abortion.
	3	Full-time deliveries.
	1	Antrostomy.
	1	Removal of fibroma of thigh.
	1	Abdominal laparotomy.
	1	Draining of enterogenous cyst.
	3	Thoracotomies.
Total of all operations	202	

Laboratory.—The laboratory investigations and tests carried out totalled 10,061.

X-Ray Department.—The following table indicates the work of this Department for the year:—

	Total.
X-Rays—	
Inpatients—European, 430; Coloured 233	663
Contacts	49
Outpatients	240
Staff	84
Lipiodols—Outpatients 61; Inpatients, 66	127
Meals, oesophagus	1
Pyelograms, intravenous	1
Therapy—	
Ultra Violet	258
Infra Red	12
Short Wave	372
Photography, etc.—	
Cardiograms	9
X-Ray Reproductions (*Neg. Pos. and Min.*)	226
Lantern Slides	75
Photographs, etc.	31
Experimental prints, etc	40
	2,188

Weekly Staff Consultations are held.—These have proved to be very successful, and are now being attended by local practitioners in increasing numbers.

Post-graduate Work.—Five practitioners from various parts of South Africa have spent up to one month at the hospital doing post-graduate work. These include the Medical Officer of Health of Pietermaritzburg; Ditsrict Surgeon, Umtata; Superintendent of Victoria Hospital, Lovedale.

Lectures to Public Bodies.—Many lectures have been given during the year to various public bodies, i.e., the Anti-Tuberculosis Association of Natal, women's institutes, schools, technical colleges, health visitors, and the British Medical Association.

Production of Tuberculosis Film.—A propaganda film on tuberculosis was produced and acted at the hospital by members of the staff, and this film has been sent to numerous public bodies in Natal on request.

Honorary Staff.—The honorary staff consists of:—

2 Thoracic surgeons,
1 Throat, nose and ear surgeon,
1 Outpatient physician,
1 Dentist,
1 Cardiologist.

The honorary staff has co-operated well in the work of the institution, and the thoracic surgery team developed therefrom has been eminently successful.

Outpatient Artificial Pneumothorax Clinic.—One clinic a week is held for outpatient artificial pneumothoraces; the average attendance is 15. All cases are controlled by fluorescent screening, and the clinic is run by the outpatient physician and a member of the resident medical staff.

Ear, Nose and Throat Clinic.—This clinic is held once weekly and all patients have a routine ear, nose and throat examination by the consultant.

Those who have definite laryngeal involvement are treated specially by means of silence, ionization with potassium iodide, and the application of chaulmoogra oil or other local agent.

Dental Clinic.—This clinic is held once a week. All patients are examined by the dentist and all necessary fillings and extractions are done by him. All cases for operation are specially prepared by the dentist and are not submitted for operation until the dentist is satisfied with the condition of their mouths.

Investigation Clinic.—This is held most mornings and at it are seen all outpatient cases suspected to be suffering from tuberculosis. These cases are referred by other hospitals, by local general practitioners and specialists, and the Corporation Health Department.

Diet Conference.—This is held once weekly and is attended by the matron, dietitians and medical staff. All diets are discussed, all complains investigated and any special diets are discussed and prescribed.

Nurses' Lectures.—Two lectures are held weekly—one for the senior and one for the junior nursing staff. All nurses attend.

The senior nursing staff receives a full course of lectures on tuberculosis, and the junior staff is given a course on first aid and home nursing and is required to take the St. John Ambulance certificate.

Extra-mural consultations.—The Medical Superintendent spends one day a week at the McCord Zulu Mission Hospital, and one day a week at the King Edward VIII Hospital, to advise on the treatment of cases of tuberculosis, and to assess the type of case for which the Department accepts responsibility.

The Medical Superintendent also advises the Addington Hospital and Grey's Hospital on problems of tuberculosis arising in the nursing staff.

Nutrition Surveys of School Children.—This survey continues when time permits. Recently a large scale investigation of the value of the Patch Tuberculin Test in comparison with Mantoux was undertaken for the South African Institute for Medical Research as part of this survey.

Tuberculosis Surveys.—Work has continued on these surveys when time has been available. A survey of the factors concerned in tuberculosis among sugar mill employees has been commenced.

Research.—It is felt that a hospital which does not conduct any research in regard to the diseases with which it deals is not fulfilling its function. Therefore, it has been the endeavour of the team of workers serving the Department and this hospital to devote as much time as possible to investigation. This demands a great deal of extra work from the members of the team, and entails the giving up of nights and week-ends on various occasions.

The following is a list of investigations in progress:—

(1) Heavy metal therapy in tuberculosis. Special attention is being paid to Cadmium (Cadmium Sulphide), copper, and bismuth.
(2) The prognostic value of differential leucocyte counts in tuberculosis.
(3) The prognostic value of blood sedimentation in tuberculosis.
(4) Amoebiasis of the lung.
(5) The incidence of bronchiectasis in the Bantu.
(6) The diagnosis of malignant disease of the lung from sputum (Haemalum Schaudin Eosin).
(7) The effect of vitamin concentrates in pulmonary tuberculosis.
(8) Ascaris infection of the lungs.
(9) Schistosomiasis of the lung.
(10) The effect of ionization on the tuberculous larynx.
(11) Syphilis of the lung.
(12) Fungus infection of the lung.

Nelspoort Sanatorium.

Average daily number of patients:		*Average stay of patients:*	
Europeans	91·3	Europeans	198 days.
Coloureds	61·0	Coloureds	166 days.
TOTAL	152·3	TOTAL	182 days.

TABLE 22.—ADMISSIONS, DISCHARGES AND DEATHS AT NELSPOORT SANATORIUM, YEAR ENDED 30TH JUNE, 1940.

Race.	Patients in residence at 1/7/39.			Patients admitted during year.			Patients discharged during year.			Patients died during year.			Patients in residence at 30/6/40.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
European.............	47	47	94	89	82	171	83	79	162	4	2	6	49	48	97
Coloured..............	48	18	66	100	38	138	96	36	132	10	1	11	42	19	61
TOTAL..........	95	65	160	189	120	309	179	115	294	14	3	17	91	67	158

These patients were admitted in the following stages of the disease:—

Condition of Patients Admitted.

	T.B. Minus Group.	T.B. Plus Group.		
		Stage I.	Stage II.	Stage III.
Percentage..................	3·7	14·2	49·7	32·4

During the year, 79 cases received artificial pneumothorax treatment at Nelspoort, which proved fairly satisfactory. Of these, 5 cases were sent to Cape Town for adhesion-cutting. One case was sent to Cape Town for a phrenicectomy.

X-Ray Department.

Eight hundred and ninety X-ray plates were taken at the following cost:—

(*a*) X-ray plates	£90	0	0
(*b*) Processing chemicals	4	1	3
(*c*) Wallets	5	0	2
	£99	1	5

giving an average of 2s. 2·7d. per photo. The above sum does not include personnel, equipment or current used.

Of the 890 plates taken, only 35 showed no evidence of tuberculosis infiltration of the lungs. The latter figure consists of 28 staff and 7 patients. Of the 28 plates taken of the staff, one showed calcification of the pleura and the remaining 27 were normal.

Rietfontein Hospital, Transvaal.

This hospital of 48 beds caters for non-Europeans only and the applications for admission are still far in excess of the accommodation. There were more than 100 applications for admission outstanding on the 30th June, 1940.

TABLE 23.—ADMISSIONS, DISCHARGES AND DEATHS AT RIETFONTEIN HOSPITAL, YEAR ENDED 30TH JUNE, 1940.

Race.	Patients in residence at 1/7/39.			Patients admitted during year.			Patients discharged during year.			Patients died during year.			Patients in residence at 30/6/40.		
	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.	M.	F.	T.
Coloured..............	9	7	16	10	16	26	7	10	17	7	3	10	5	10	15
Native.................	17	12	29	23	10	33	14	13	27	4	2	6	22	7	29
Asiatic................	1	—	1	—	2	2	1	2	3	—	—	—	—	—	—
TOTAL..........	27	19	46	33	28	61	22	25	47	11	5	16	27	17	44

Bovine Tuberculosis.

Human infection by the bovine type of *B. tuberculosis*, although widely accepted, was never proved in South Africa by culture and other laboratory means until 1939, when Dr. C. Harington and N. Emmerson, of the Port Elizabeth branch of the South African Institute for Medical Research, recovered the bovine type of bacillus from the stool of a child of six years, who was considered to have died of intestinal tuberculosis.

In the same year Mrs. G. Buchanan and C. du Toit of the South African Institute for Medical Research, Johannesburg, isolated the bovine type of bacillus from a child of eleven years who had tuberculous meningitis.

In view of the high incidence of proved bovine infection in other countries this local proof has been long awaited and extension of the investigations is justified to enable us to assess the true proportion of infection from cattle, due in the majority of cases from drinking infected milk.

12. TYPHUS OR RICKETTSIOSIS.

Investigation of the epidemiology, pathology, prophylaxis and therapeutics of the three types of rickettsiosis which occur in the Union has been continued. The findings, though not yet final, are of general interest.

Louse-borne typhus is still particularly prevalent in the Transkeian Territories, where it is associated with cold, over-crowding, poor standards of personal hygiene, malnutrition and general poverty. In Natal the vigilance and activity of the Native Malaria Assistants have proved invaluable in assisting the Department's deverminising staff and the low incidence of the disease in Natal is undoubtedly due in great part to their methodical work in the less accessible areas. This is a practical factor which adds weight to the cry for improved and increased medical services in all its branches in the Transkeian region and other Native areas in particular.

What may prove of far-reaching importance is the encouraging work by the Biological Control Laboratories at Cape Town on a new alum-precipitated anti-typhus vaccine which produces a good immunity and protects susceptible animals against the disease.

Tick typhus, or tick-bite fever as it is commonly known, is becoming more widely recognised. Workers at the South African Institute for Medical Research have succeeded in transmitting the virus of tick typhus by the common dog tick, *Haemaphysalis leachi, to guinea-pigs. This being so, the* increasing occurrence of this relatively mild type of typhus amongst European dog owners who have a habit of de-ticking dogs with unprotected fingers and allowing tick-infested dogs access to beds, etc., had led to a public warning in the Press to guard against such habits as might expose them to infection. Blood from an infected tick squirting into the eye or rubbed in by the fingers is a proved method of infection.

Rat-flea or *murine typhus* is less common than tick typhus, but like it, is the cause of sporadic cases. Its existence in Natal was proved for the first time in 1939 when Drs. J. H. S. Gear and B. de Meillon in collaboration with the Medical Officer of Health of Pietermaritzburg, investigated an occurrence of typhus in the borough.

Classical typhus generally produces some immunity to murine typhus and a little to tick typhus, but tick typhus only produces an immunity against tick typhus.

The statistics of reported cases of typhus for the period 1923-39 were fully recorded in the annual report of 1939, to which interested readers are referred. Notifications for the past year are shown in Table 24.

TABLE 24.—TYPHUS FEVER: CASES AND DEATHS REPORTED DURING THE YEAR ENDED 30TH JUNE, 1940.

Province.	Number of Districts in which Outbreaks Occurred.	European.		Non-European.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cape	31	14	2	621	108	635	110
Natal	16	4	—	80	13	84	13
Orange Free State	8	—	—	62	11	62	11
Transvaal	7	2	—	58	12	60	12
UNION	62	20	2	821	144	841	146

13. TROPICAL ULCER.

This condition has not previously been mentioned in the annual reports. It is not a notifiable disease and, therefore, records of its incidence and distribution are not easily obtained.

Wider interest in this problem has been stimulated by the Malaria Research Station at Tzaneen, where 66 cases were treated, with 42 cures. The remaining 24 did not attend for the complete treatment. An extensive outbreak in the circumcision schools of the northern Transvaal early in 1940 brought the disease to the public notice.

At present it appears to be largely confined to the periphery of the north-eastern Transvaal, where we know that a great deal of illegal Native traffic from tropical areas outside the Union takes place. Our District Surgeons at Komatipoort and Barberton, Zoutpansberg and Letaba see a great many cases which almost always prove to be indentured Native labourers from Portuguese East Africa. It is actually referred to in some tropical medicine textbooks as ,, Mozambique Ulcer ", although it is not confined to that territory by any means.

Microscopical examination of material from hundreds of cases invariably revealed the Schaudinn's spirochaetes and fusiform bacilli similar to those seen in Vincent's angina of the mouth and throat. Many of the Native children in the above-mentioned circumcision schools exhibited a gross sloughing phagedena of the genitals during the outbreak, but usually the ulcer occurs on the leg, where it forms a deep spreading painful sore of many months' duration if untreated.

Dietetic factors may play a part in the affected cases, but up to the present the interplay of various factors has not been satisfactorily established.

Research into the best form of treatment is being actively pursued and, while some workers are satisfied that cauterisation by pure carbolic acid under a general anaesthetic followed by immobilisation in plaster is the best method, others are claiming equally good results with local applications of Neoarsphenamine followed by antiseptic powders and ointments.

14. VENEREAL DISEASES.

The Venereal Diseases Advisory Committee, appointed in consequence of a Parliamentary debate upon venereal diseases in May, 1939, held its first meeting in February, 1940. The Committee reviewed the whole position and confirmed the policy already adopted by the Department in dealing with the venereal diseases problem. That policy consists of, first, the provision of facilities for treatment and, second, propaganda with a view to securing full response to those facilities on the part of those who require them.

Facilities for treatment include not only the establishment of treatment centres, but the provision at Government expense for the free issue of the somewhat costly drugs used in the treatment of venereal diseases and for the making of diagnostic tests. Drugs are issued to provincial hospitals and certain mission hospitals as well as to special municipal clinics and to district surgeons throughout the country. The annual provision for this service has increased from £11,000 to £20,000 within the past two years.

In accordance with one of the basic principles of the Public Health Act, the Department encourages the establishment of venereal diseases clinics by local authorities who are in a position to conduct such clinics satisfactorily. A refund of two-thirds of all approved expenditure on such clinics is made by the Department, in addition to the entirely free issue of drugs already noted. The advantage of clinics established by the local authorities is that they enable the control of venereal diseases to be closely linked with other local health activities, particularly maternity and child welfare clinics, and with the work of health visitors and other personnel of health staffs who make intimate contacts with the residents of the local area and can thus round up defaulters from treatment and bring to light new cases. Every large local authority in the Union now maintains venereal disease clinics, many of which are handling an ever-increasing number of cases, as will be seen from the accompanying table. There are some 70 such clinics in the Union.

TABLE 25.—VENEREAL DISEASES: CASES TREATED AND ATTENDANCES, YEAR ENDED 30TH JUNE, 1940.

Locality.	In Hospital.						Outdoor.					
	Syphilis.		Gonorrhoea and Other Venereal Diseases.		Total.		Syphilis.		Gonorrhoea and Other Venereal Diseases.		Total.	
	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.	European.	Non-European.
(1) *By District Surgeons.*												
Cape	48	1,381	18	343	66	1,724	588	17,857	425	1,630	1,013	19,487
Natal	12	1,019	14	248	26	1,267	78	14,018	34	1,168	112	15,186
Transvaal	14	3,035	6	295	20	3,330	474	27,600	483	1,398	957	28,998
Orange Free State	3	120	48	61	51	181	316	9,392	263	1,299	579	10,691
TOTAL	77	5,555	86	947	163	6,502	1,456	68,867	1,205	5,495	2,661*a*	74,362*a*
(2) *At Institutions and Clinics.*												
Adelaide*	—	—	—	—	—	—	—	6	—	—	—	6
Aliwal North	—	—	—	—	—	—	7	347	—	1	7	348
Barberton	—	480	—	—	—	480	—	—	—	—	—	—
Beaufort West†	—	—	—	—	—	—	—	592	—	—	—	592
Benoni	—	—	—	—	—	—	389	6,070	64	1,417	453	7,487
Bethlehem	—	25	—	4	—	29	—	222	—	4	—	226
Bloemfontein	34	269	24	33	58	302	776	4,623	103	62	879	4,685
Bochem	—	815	—	5	—	820	—	440	—	—	—	440
Boksburg	—	—	—	—	—	—	637	3,243	352	66	989	3,309
Brakpan	2	48	—	3	2	51	98	1,462	—	—	98	1,462
Cape Town	15	123	18	3	33	126	10,650	28,080	3,080	3,941	13,730	32,021
Cape Divisional Council	—	—	—	—	—	—	265	2,610	65	88	330	2,698
Darling	—	—	—	—	—	—	—	54	—	—	—	54
De Aar	—	—	—	—	—	—	—	516	—	1	—	517
Durban (Addington)	63	—	67	—	130	—	2,411	—	6,638	—	9,049	—
East London	—	—	—	—	—	—	489	3,349	330	1,378	819	4,727
Elim	—	435	—	16	—	451	—	107	—	—	—	107
Germiston	7	171	12	35	19	206	941	3,577	346	289	1,287	3,866
Gordons Bay	—	—	—	—	—	—	—	575	—	—	—	575
Hercules	—	—	—	—	—	—	—	3,372	—	95	—	3,467
Jansenville	—	—	—	—	—	—	5	104	—	12	5	116
Johannesburg	—	—	—	—	—	—	9,123	—	4,968	—	14,091	—
Kimberley	9	258	—	—	9	258	194	6,441	51	175	245	6,616
King Edward VIII (Durban)	—	2,601	—	1,550	—	4,151	—	12,237	—	13,866	—	26,103
Kingwilliamstown	1	256	2	14	3	270	—	26	—	—	—	26
Kokstad	—	7	—	—	—	7	—	978	—	—	—	978
Kroonstad	—	—	—	—	—	—	—	353	—	2	—	355
Krugersdorp	—	98	—	—	—	98	81	1,275	—	—	81	1,275
Kuruman	—	45	—	—	—	45	—	346	—	—	—	346
Lichtenburg‡	—	—	—	—	—	—	—	29	—	—	—	29
Mariannhill	—	—	—	—	—	—	—	331	—	21	—	352
Molteno	—	—	—	—	—	—	—	554	—	—	—	554
Newcastle	—	54	—	16	—	70	—	2	—	2	—	4
Olifantshoek	—	—	—	—	—	—	3	538	—	—	3	538
Oudtshoorn	—	—	—	—	—	—	—	240	—	—	—	240
Paarl (Municipality)	—	—	—	—	—	—	121	627	—	—	121	627
Paarl (Divisional Council)	—	—	—	—	—	—	4	1,232	—	3	4	1,235
Pietermaritzburg	—	1,043	—	146	—	1,189	340	10,267	78	160	418	10,427
Pietersburg	—	—	—	—	—	—	—	2,394	—	—	—	2,394
Piet Retief	—	125	—	—	—	125	—	294	—	—	—	294
Port Elizabeth	—	—	—	—	—	—	2,848	13,085	1,187	1,168	4 035	14,253
Port Shepstone§	—	—	—	—	—	—	—	278	—	—	—	278
Potchefstroom	—	—	—	—	—	—	—	3,198	—	—	—	3,198
Pretoria	—	—	—	—	—	—	3,048	15,991	3,064	3,323	6,112	19,314
Randfontein	—	—	—	—	—	—	—	1,579	—	3	—	1,582
Rietfontein	97	4,447	105	1,339	202	5,786	187	805	—	—	187	805
Sekukuniland (Jane Furse Memorial)	—	191	—	13	—	204	—	2,868	—	6	—	2,874
Senekal	—	—	—	—	—	—	5	1,353	—	—	5	1,353
Somerset West	—	—	—	—	—	—	6	137	—	2	6	139
Springs	—	—	—	—	—	—	1,150	24,709	415	2,006	1,565	26,715
Standerton	—	—	—	—	—	—	—	201	—	—	—	201
Stellenbosch (Municipality)	—	6	—	—	—	6	—	418	—	—	—	418
Stellenbosch (Divisional Council)	—	—	—	—	—	—	—	1,323	—	—	—	1,323
Sterkstroom	—	—	—	—	—	—	—	99	—	1	—	100
Swellendam	—	2	—	2	—	4	—	60	—	2	—	62
Tulbagh‖	—	—	—	—	—	—	—	11	—	—	—	11
Uitenhage	—	35	—	—	—	35	—	2,028	—	1	—	2,029
Umtata	—	315	—	26	—	341	—	115	—	—	—	115
Vereeniging	—	—	—	—	—	—	168	11,119	36	982	204	12,101
Vryburg	—	132	—	6	—	138	—	256	—	—	—	256
Wellington	—	—	—	—	—	—	5	185	—	11	5	196
Winburg	—	—	—	—	—	—	—	158	—	—	—	158
Zeerust	—	39	—	—	—	39	4	359	—	—	4	359
TOTAL	228	12,020	228	3,211	456	15,231	33,955	177,848	20,777	29,088	54,732*b*	206,936*b*

In the rural areas local authority clinics are few and far between. All district surgeons including additional district surgeons are supplied with the necessary drugs and are charged with the duty of giving free treatment to all cases of venereal disease which are not in a position to pay. There are 381 district surgeons, so that through them there are facilities in every small town and most of the villages of the Union.

In order to provide still further facilities the Department authorises district surgeons to pay regular visits to distant points within their respective areas for the purpose of treating cases of venereal diseases. Records of these visits are kept and the continuance or otherwise of a clinic is determined according to the measure of the response. Owing to the huge extent of the Union and the limitations of the funds available for this service, it is impossible to accede to every request made for the establishment of new treatment centres under this scheme. The Department frequently authorises special series of visits to centres where several cases of infective syphilis are known to exist.

It must be admitted that it is impossible to bring treatment within *easy* reach of all rural cases and inasmuch as effective treatment depends upon the administration of regular weekly injections over a prolonged period, it is hardly surprising that the incidence of syphilis is as high as it is in some rural areas. Nor can this difficulty be met entirely by the provision of hospital or other accommodation at which the patients may reside until fully cured, for the provision required would be beyond the bounds of practicability. The Department does itself provide and subsidises a number of mission hospitals which provide hospital accommodation for such infective cases as come to light.

Great as are the difficulties of providing adequate treatment facilities throughout the country they are small compared with the difficulties of securing early, regular and prolonged attendance by those suffering from venereal diseases even where the facilities are available.

In the early stages of infection the venereal patient is all too often deterred from seeking medical aid by his anxiety to keep secret his condition. In the case of Europeans this anxiety is occasioned by the dread of moral and social stigmatisation. Compulsory notification, so strongly advocated in some quarters, is likely to diminish rather than increase the number of cases which will go to a doctor for diagnosis. In this connection, it should be remembered that, unlike the infectious diseases which are already notifiable, venereal diseases can easily be concealed if the sufferers so desire. With regard to Natives, a strong inducement to attempt concealment of venereal diseases is often the fear of loss of employment or even, in some cases which have come to the notice of the Department, of eviction from tenancy on a farm.

The campaign against venereal diseases would be greatly assisted, in the case of Europeans, by a change of social attitudes, and in the case of Natives, by a change in the attitude of employers. The employer who regards any employee who has contracted venereal disease as a moral and physical untouchable fit only for instant dismissal puts a premium upon concealment and thus actually increases the very risks he so greatly fears. If, instead, he were to encourage his employees to report immediately they suspect they are infected, and to afford them every facility for regular treatment, he would reduce the incidence among his employees and among the Natives generally, for *syphilis ceases to be infective as soon as it is brought under adequate regular treatment.*

A short course of treatment, limited to a few injections, efficacious as it usually is in clearing away the obvious manifestations of the disease especially in its early stages, is not sufficient to render the patient non-infective for all time. Even after a number of injections and even though he may have no symptoms obvious or suspicious to himself, a person who has had syphilis may, even after a considerable period after original infection, become infective to a partner in sexual intercourse. There can be little doubt that a great many persons, especially among Natives, are thus infected in entire innocence. The case of the child-bearing woman who has had syphilis is even more tragic. She, although she may exhibit no symptoms whatever and may have had a considerable amount of treatment, may nevertheless transmit syphilis to her offspring at any of her pregnancies.

It is not known how many full doses of anti-syphilitic drugs, at weekly intervals, are necessary in order to preclude all possibility of relapse into a potentially infective condition as described above, but it is at least twenty and probably a great many more. Only a very small fraction, even of the cases which come under treatment, receives anywhere near twenty injections each. With regard to child-bearing women, the only sure way of preventing the birth of congenital syphilitics is to administer a considerable amount of treatment during each pregnancy, however much treatment may have been administered previously.

In order to check the spread of syphilis it will be necessary to convey the facts outlined in the two preceding paragraphs to the notice of the entire population with such clarity and force that infected persons will not neglect to secure adequate treatment. A programme with this end in view is already in hand. For many years the Department has issued leaflets in both official and several Native languages setting forth information with regard to venereal diseases and their treatment. As most Natives cannot read, considerable importance attaches to the training and employment of Native health assistants or sanitary aids to carry out verbal propaganda among their own people. Remarkable increases of attendances at clinics have followed the employment of such personnel in several urban locations. The year under review has also witnessed the release of a film entitled " The Two Brothers ", specially made by the National Health Education Committee in collaboration with the Department. The principal actors in the film are Natives and it demonstrates to Native audiences the importance of treatment of venereal diseases both for the individual affected and for his family.

15. Other Diseases and Conditions.

(*a*) *Deficiency diseases.*

It is now generally recognised that an alarming amount of malnutrition exists amongst the non-European and even amongst sections of the European population of the Union. Surveys and an accumulation of clinical evidence from various parts of the country leave no doubt as to the seriousness of the position. The malnutrition is seldom the result of crude starvation but is due to the shortage and relatively high cost of the protective foods which induce the bulk of the poorer sections of the people to subsist largely on starchy cereals deficient in protein, minerals and vitamins. This unbalanced diet has very far-reaching effects on the consumer and apart from causing specific diseases it frequently increases the susceptibility to others. The enormous economic handicap which has been brought about by such improper food supplies has been repeatedly revealed by careful scientific investigations, particularly in America and on the Continent, where the impaired work-efficiency, loss of working hours through fatigue and debility, and similar effects have been surveyed. The Metropolitan Life Insurance Company in America has, by an analysis of its own vast statistics, corroborated such findings and its propaganda bureau stresses the immense importance of a correct diet in maintaining health and full efficiency. The problem facing this country is that of supplying these poorer people, and particularly their children, with adequate amounts of protective foods, viz., dairy products, eggs, meat, vegetables and fruit.

The methods available for dealing with this problem include raising of wages, dietetic education, provision of free or subsidised food, and agricultural improvement.

The National Nutrition Council, which was gazetted this year, has been established and institutes and co-ordinates the necessary work towards this end. It is hoped that full collaboration with competent authorities, medical, social and economic, will alleviate and ultimately restore the balance which has been lost on the one hand largely by our attraction to the highly refined or canned simple-to-use tasty but expensive " civilised " foods and on the other, by the deprivation of the Natives of meat and milk and other fresh protective foods to which they were at one time accustomed in rural areas. The almost complete absence of milk from the diet of most Native children is contributing to a heavy death-rate in the first few years of life.

Those that survive are, to an increasing extent, unfit for strenuous work. The evil effects of this on future labour supplies to our agricultural, mining and other industries need not be stressed.

The detailed statistics regarding the incidence and distribution of the diseases specifically attributable to poor feeding in South Africa are not yet available, although surveys have been done amongst Native school children in selected areas. Up to the present scurvy, pellagra, beri-beri and rickets have been the most generally recognised but even they are frequently missed or confused with other ailments, and increased post-graduate training in this branch of medicine is obviously desirable.

Throughout this report year, for example, 45 cases af pellagra were admitted to one Government institution with the diagnosis of syphilis. Several more have been certified as lepers and while a deficiency disease may often be present together with another disease, in these cases there was only pellagra. Mental changes are a late result of the disease and in 1938 there were 43 pellagrins in mental institutions. It is obvious, therefore, that for economic as well as humanitarian reasons the rapid recognition of pellagra is most important, and it is up to the medical practitioners to avail themselves of the post-graduate courses which are now held almost annually in one form or another, in order to keep up with the recent advances in diagnosis and treatment of this and other preventable conditions.

(*b*) *Measles in Stock.*

Last year a round table conference was held to discuss this problem and the meeting demonstrated that this matter could only be tackled successfully by employing appropriate sanitary measures in locations and rural areas, including the use of Native medical services and that intensive and continued propaganda should be extended in all communities.

These findings have been valuable in assisting the Department by stressing the importance of its programmes of health education, Native health and similar services. The Native Affairs Department too, has given us the closest co-operation and has done valuable work in insisting upon improved health and sanitary matters in locations and Native areas on advice and guidance from this Department. The dissemination of simple health requirements has been gradual, but it is beginning to show a return and the public are slowly realising the close association that exists between human health, animal health, good agriculture and the economic value of all improvements that can be made in this direction.

Veterinary workers have shown that over £10,000 is lost in the Union per annum through condemned " measly " meat alone. If only human beings ensured that all their own excreta was disposed of out of the reach of cattle, pigs and dogs, there would be no problem.

(*c*) *Prevention of Cancer.*

When the National Cancer Association of South Africa was formed at the end of 1931, among the Articles of Association was one which laid down as one of the chief activities of the Association, the dissemination of knowledge of cancer throughout the Union and the education of the public as to what cancer does and what can be done for those suffering from the disease. A criticism of this activity, which has been made, is that by publicity we shall create an unnecessary fear of cancer which will defeat the objects of the Association. It is maintained that people will tend to put off being examined in case they might be told that they were suffering from the disease. The fear is based on lack of knowledge, particularly the lack of knowledge *that if cancer is detected and treated early, it may be cured.* The number of deaths resulting from ignorance of its nature and delay in diagnosis and proper treatment is appalling. Recent investigations by the Health Organisation of the League of Nations show conclusively that *many lives would be saved if all the sufferers sought medical advice in the early stage of the disease.*

The above Association has been registered under the Companies Act, its main objects being to make investigations as to the causes and treatment of cancer; to take steps for the prevention, treatment, and combating of cancer particularly by educating and securing the intelligent co-operation of the public and directing their attention to the necessity for seeking medical advice and treatment in the early stages of the disease and to establish of form, or aid in the establishment or formation of a National Cancer Institute or Institutes for the prevention or treatment of cancer.

The affairs of the Association are directed by a Council of 20, of whom 15 are elected by members and the remainder appointed by the Union Government and Provincial Administrations of the Union.

A sub-committee, the Statistical and Records Committee, is at present engaged on the compilation of statistical evidence which is a basic requirement in such a scheme. Records of non-European cases of cancer are difficult to obtain, just as other vital statistics of this group are inaccessible, except in a few isolated local authority areas.

VI. GENERAL.

1. Housing and Slum Elimination.

Full details of the working of the Housing Act, No. 35 of 1920, the Additional Housing Act, No. 41 of 1937 (assistance to building societies) and the Slums Act, No. 53 of 1934, from the date of their commencement, are contained in the report of the Central Housing Board for the calendar year ended 31st December, 1939 (U.G. No. 19 of 1940), which was laid on the Tables of Parliament. A summary of the position of the Housing Act as at 30th June, 1940, is given in Table 26.

TABLE 26.—HOUSING ACT, No. 35 OF 1920—WORKING FROM PROMULGATION, 16TH AUGUST, 1920, TO 30TH JUNE, 1940.

Province.	Loan Applications Approved.			Loan Issues.	Number of Houses.					
	European.	Non-European.	Total.		Completed.	Under Construction.	Approved, but not yet commenced.	Total.	Total for European Occupation.	Total for non-European Occupation.
(A) *Economic Housing.*										
Cape	1,896,551	666,949	2,563,500	2,356,009	7,394	36	691	8,121	3,048(*a*)	5,073 (*b*)
Natal	590,436	134,999	725,435	698,954	1,124	87	34	1,245	600	645 (*c*)
Orange Free State	698,114	20,618	718,732	682,981	1,743	363	428	2,534	894 (*d*)	1,640 (*e*)
Transvaal	2,405,058	293,284	2,698,342	2,638,709	4,961	179	421	5,561	3,056	2,505 (*f*)
TOTAL	5,590,159	1,115,850	6,706,009	6,376,653 (*g*)	15,222	665	1,574	17,461	7,598	9,863
(B) *Sub-Economic Housing.*										
Cape	881,606	3,129,923	4,011,529	2,218,185	4,249	975	7,616	12,840	1,805	11,035
Natal	6,824 (*h*)	338,832	345,656	273,327	545	237	108	890	—	890
Orange Free State	8,400	—	8,400	8,400	9	1	6	16	16	—
Transvaal	1,040,357	1,773,933	2,814,290	2,110,921	5,154	466	1,813	7,433	1,239	6,194
TOTAL	1,937,187	5,242,688	7,179,875	4,610,833	9,957	1,679	9,543	21,179	3,060	18,119
(C) *Housing of the Aged Poor.*										
Cape	20,669	16,973	37,642	10,972	46	—	204	250	114	136
Natal	25,000	—	25,000	25,000	50	—	—	50	50	—
Orange Free State	6,000	—	6,000	4,200	20	—	8	28	28	—
Transvaal	27,500	—	27,500	7,408	8	3	12	23	23	—
TOTAL	79,169	16,973	96,142	47,580	124	3	224	351	215	136
TOTAL (A), (B) and (C)	7,606,515	6,375,511	13,982,026	11,035,066	25,303	2,347	11,341	38,991	10,873	28,118

(*a*) Includes a hostel to accommodate 86 persons.
(*b*) Includes 1,337 single rooms in blocks, 8 barracks and 160 flats.
(*c*) Includes 3 barracks and 36 single rooms in blocks.
(*d*) Includes a hostel for European girl employees at Bloemfontein.
(*e*) Includes 24 single rooms in blocks, the balance of 845 representing the approximate number of dwellings to be built out of a total loan of £16,818 made to three Local Authorities for use exclusively in purchasing materials to be advanced to Coloured persons and Natives building their own homes.
(*f*) Includes 303 single rooms in blocks, 3 compounds and 13 hostels.
(*g*) Includes £2,120,004 re-issued out of repaid capital.
(*h*) Sub-economic Loan to complete Aged Poor Scheme at Sydenham, Durban.

The activity of local authorities in dealing with bad and insufficient housing within their areas has been maintained during the present year. The number of schemes and dwellings approved in respect of economic housing involved loans totalling £557,306 as compared with £636,522 for the corresponding period in 1939. The subeconomic loans approved involved loans amounting to £1,460,279 compared with £846,484 in 1939. The increase in the subeconomic loans is due to the Government's having agreed to increase its commitment in this respect which enabled allotments to be made to a number of local authorities which had previously applied for sums which it was not possible to meet owing to lack of funds.

Applications for loans under the Additional Housing Act were well maintained in the earlier months but showed a distinct falling off towards the end of the year. Enquiries amongst building societies elicited the information that the decrease was due to the war conditions; a number of prospective borrowers had either enlisted for military service or had postponed building operations.

Economic Housing.—The Government's commitment for economic housing was increased by a further £1,372,000 during the year, thus bringing the total commitment to £7,500,000. This figure includes the amount of £1,128,000 which was surrendered by the provincial administrations out of capital repayments made by local authorities and which the Treasury agreed to restore to the capital fund, but to be spread over a period of 5 years. The total sum allotted to local authorities out of economic funds from the commencement of the Act in August, 1920, to 30th June, 1940, amounts to £8,242,388 which is to be met out of funds provided by the Treasury and capital repayments made by local authorities to the different provincial administrations.

Of the £7,500,000 commitment a total sum of £4,256,649 has been issued out of economic funds provided by the Treasury, whilst in addition £2,120,004 has been reissued from capital repayments by the provincial administrations making the total issues for economic housing, as at 30th June, 1940, £6,376,653. An amount of £650,000 has been made available for issue during the present financial year and in addition it is estimated that the provincial administrations will have a total sum of £133,500 available for reissue out of capital repayments to be received during the year. The rate of interest charged on economic loans was raised from 3½ per cent. to 4 per cent. with effect from 1st April, 1940.

Owing to the increased cost of building materials and builders' ironmongery brought about by the war it was found necessary to increase the limit as regards the cost of dwellings and the maximum loan which could be granted. The limits now operating are as under:—

	Cost of dwelling may not exceed.	*Maximum loan which can be granted.*
At centres in which wages of the building industry are prescribed in terms of the Industrial Conciliation Act, No. 11 of 1924 ...	£1,100	£1,050
At centres where the Industrial Conciliation Act does not apply	£990	£880

Subeconomic Housing.—The Government agreed to provide an additional £2,500,000 for subeconomic housing and its commitment in this respect now stands at £15,500,000, the whole of which has been fully allotted. There are on hand a number of applications from local authorities for an allotment of funds amounting to £866,000 which at present cannot be considered owing to there being no funds available.

As at 30th June, 1940, an amount of £4,610,833 had been issued to local authorities. A sum of £2,000,000 has been made available for issue during the present financial year in respect of schemes which have already been approved. Full details of loans granted to local authorities throughout the Union will be found in the Annual Report of the Central Housing Board.

Additional Housing Act, No. 41 of 1937.—The Government is not committed to any definite amount under this Act beyond the amount provided on the estimates each year. The amount made available for issue during the present financial year ending on 31st March, 1941, is £250,000. There has been no change in the number of building societies participating in the scheme which remains at 18. These societies have branches throughout the Union. The number and value of the loans granted and the amount advanced by the Government from the date the Act came into effect are set out in the following Table 27:—

TABLE 27.—ADDITIONAL HOUSING ACT, NO. 41 OF 1937.

Name of Society.	No. of Loans.	Value of Loans.			Amount advanced by Government.		
		£	s.	d.	£	s.	d.
Adelaide Mutual Building Society................	1	1,034	0	0	344	13	4
African Mutual Loan and Savings Society.........	1	950	0	0	250	0	0
Alliance Building Society........................	100	122,719	13	6	40,506	10	4
Colonial Permanent Building Society.............	11	11,772	10	0	3,922	10	0
County Permanent Building Society..............	5	5,413	0	0	1,804	6	8
Natal Building Society..........................	199	230,881	10	0	76,818	4	8
Rand Provident Building Society................	145	162,357	14	0	54,119	4	8
S.A. Permanent Mutual Building and Investment Society...................................	481	531,196	9	0	176,799	19	8
Standard Building Society......................	61	67,784	6	0	22,575	18	8
St. Andrew's Building Society..................	73	89,877	0	0	29,940	0	0
United Building Society.........................	685	727,002	15	3	242,269	5	1
TOTAL TO 30/6/40..................	1,762	1,950,988	17	9	649,350	13	1

Housing of the Aged Poor and Totally Unfit.—The Government agreed to increase its commitment for this purpose from £100,000 to £250,000. Schemes have been or are being carried out at Cape Town, Durban, Johannesburg, McGregor, Philipstown, Port Elizabeth and Zastron. The amount made available for issue during the present financial year is £39,000. No new loans were granted during the year.

Housing Act, No. 35 *of* 1920.—The total value of loans approved under this Act during the year amounted to £2,017,585, involving the erection or enlargement of 5,460 dwellings, details of which are as under:—

Economic housing (4 per cent. loan funds), loans totalling £557,306. Number of dwellings involved, 738.

Subeconomic housing (¾ per cent. loan funds), loans totalling £1,460,279. Number of dwellings involved, 4,722.

Housing of the Aged Poor and Totally Unfit (1s. per cent. loan funds): Nil.

The corresponding figures for the preceding year are:—

Economic loans, £636,522. Number of dwellings involved, 884.

Subeconomic loans, £846,484. Number of dwellings involved, 1,543.

Housing of the Aged Poor and Totally Unfit. Loans totalling £60,170. Number of dwellings involved, 222.

Slum Elimination.—The Slums Act, No. 53 of 1934, was extended during the year to seven additional centres, namely, Krugersdorp (Proclamation No. 186 dated 18th August, 1939), Vereeniging (Proclamation No. 187 dated 18th August, 1939), Nelspruit (Proclamation No. 208 dated 13th September, 1939), Cradock (Proclamation No. 223 dated 16th September, 1939), Brakpan (Proclamation No. 261 dated 9th October, 1939), Pietersburg (Proclamation No. 285 dated 10th November, 1939), Fort Beaufort (Proclamation No. 303 dated 25th November, 1939). The number of centres at which the Act is in force now totals 37.

During the year 44 appeals, involving 53 premises, were lodged under section 4 (10) of the Act against the declaration of single sets of premises as slums. Of these, 34 appeals involving 43 premises were received from Johannesburg, 3 appeals involving 3 premises were received from Durban, 2 appeals involving 2 premises were received from Germiston, 1 appeal involving 1 property from Uitenhage, 3 appeals involving 3 premises from Pretoria, and 1 appeal involving 1 property from Fort Beaufort. One appeal from Durban was upheld owing to the notice in terms of the Act not having been served on the owner of the premises in question, 1 appeal from Johannesburg was upheld as it was established that the premises concerned were used for industrial purposes and not for living purposes, 1 appeal from Pretoria was remitted for further information, whilst in another appeal from the same centre it was established that the notice had been incorrectly served and the Council was asked to commence proceedings *de novo*. One appeal lodged in terms of section 15 (3) of the Act against the refusal of the local authority to rescind a slum declaration was received from Oudtshoorn. The refusal to rescind the declaration was upheld. Two applications to acquire premises declared to be slums, 1 in terms of section 17 (1) (*a*) and the other in terms of section 17 (1) (*b*) of the Act, were received from Cape Town. Both applications were granted. A notice in terms of section 20 (1) of the Act was published in the *Gazette* increasing the amount of compensation payable to the owner by the local authority by 30 per cent. in respect of slum properties situate within the municipal boundaries of Durban.

General.—The Central Housing Board has continued its activities in revising and improving the type plans and specifications which have proved very valuable as a guide to local authorities and other interested bodies. The demand for these has increased throughout the year and improvements and suggestions following their application in widely different environments and geographical areas have been noted by the technical officers of the Board for inclusion in or modification of the existing copies. These observations have proved particularly useful to departmental officers for providing helpful and practical advice in the course of routine meetings and inspections.

Railways Administration: European Housing.—The Administration in its health and social welfare activities is vitally concerned in the problem of adequate housing for the railway population. Old houses, many of which were constructed before public health laws were framed, poor ventilation and lighting, small rooms and overcrowding, indiscriminate siting, all have an important bearing on health and social problems. The architectural and engineering department has realised the necessity for close collaboration with this organisation and much has been accomplished within recent years to improve matters. Many old and unsuitable houses have been demolished or improved. Plans for new types of houses are referred to the Deputy Chief Health Officer (Railways) for approval from the health aspect and all site plans are referred to health inspectors for the same reason. Extensive housing programmes have been drawn up and are being executed as quickly as funds permit. In addition, the Administration's housing loan and rent rebate schemes are playing an important part in reducing the shortage and improving the standard of housing for the staff.

Progress in the provision of new European departmental houses continued during the year, though the European houses completed in the Union numbered 268 as against 365 during the previous year. Unprecedented traffic and increased staff added their quota to the difficulties so that at many centres the housing available was still far below that required. In the eastern Transvaal, for instance, the year under review ended with a shortage of 265 houses for European families and single accommodation for 211 men, compared with a shortage of 161 and 46 respectively, during the previous year, which appears to illustrate that building is not yet in proportion to the need. At Ladysmith, over 100 families are on the waiting list for departmental houses. The position at this centre is aggravated by the fact that few good houses are available in the town for letting and many families are forced to hire very inferior dwellings. At points on the Reef where suitable houses can usually be secured without much difficulty, the shortage is not so keenly felt.

At Germiston a detailed survey was conducted by the health and welfare staff during February, of railway servants occupying private houses at that centre. The matter arose out of statements made in the last Annual Report of the Medical Officer of Health of Germiston to the effect that the conditions of railway employment did not permit of the lower paid railway staff renting the better type of house, with the result that the slum areas of Germiston contained an unduly large proportion of railway men and that considerable overcrowding existed due to subletting.

On investigation it was found that the particulars quoted by the Medical Officer of Health concerning railway housing were based on a survey carried out two or more years ago, and by no means reflected the position in January last, when the report was issued.

Although, through want of addresses, it was impossible to visit the homes of all servants living in private houses within the Germiston area, a large proportion of those living in definite slum areas was visited. Of 104 privately-owned houses inspected, 58 or 55·76 per cent. were definitely of a slum order, 8 houses or 7·69 per cent. were border-line slums and only 38 or 36·5 per cent. were satisfactory. The rent rebate allowance to railwaymen which provides for a departmental allowance up to a maximum of £4 per month to each employee bearing a rental which is in excess of 20 per cent. of his substantive emoluments, came into effect from the 15th November, 1937. Yet, despite this concession, the survey at Germiston indicates that there are still many employees occupying dwellings which are not up to a minimum standard of hygiene. In the same way it also clearly indicates the extreme dearth of reasonably cheap and decent housing accommodation in this area and the need for a slum clearance and municipal housing programme for workmen. If reasonably priced houses of a decent standard of hygiene were available in Germiston, one feels convinced that the 2½ years so far experienced of the rent rebate scheme would have rendered it unnecessary for railway people to continue living in slum types of houses.

Railway employees, as ordinary taxpayers, should be included in the normal population of a town and not regarded as falling in a separate category from other residents and excluded from a housing or other public scheme. As it is, the Railways Administration contributed quite considerably to the solution of the housing problem by providing no less than 195 houses for its staff at Germiston. The Council's housing scheme to date consists of some 37 houses for the whole town, a fact which must have a very great bearing on the continued occupation of slum property by working men.

The examples quoted are the most outstanding, but similar difficulties exist at various other centres. Whilst the larger local authorities have embarked upon housing programmes, progress, comparatively speaking, has been slow, mainly for financial reasons. Since the outbreak of war, the position is tending to become easier owing to the vacation of large numbers of dwellings, particularly at the larger centres, with a tendency also to reduced rentals.

Apart from the construction of new houses, many improvements were effected to existing houses, notably the addition of pantries, bathrooms and extra bedrooms, the provision of kitchen sinks and improvements to lighting and ventilation.

A noteworthy feature is the increased interest taken in and care bestowed on property by tenants as a direct result of house inspections made and advice given to tenants by health inspectors and lady health and social visitors.

Rest Rooms and Hostels.—Improvements and extensions were effected to rest rooms for running staff at Wolseley, Ashton, Naauwpoort, Klipplaat, Cookhouse, Humansdorp and Messina, whilst new rest rooms were provided at Hutchinson, Rosmead and Zastron. The addition of 52 bedrooms to the men's hostel at Bloemfontein was in course of completion and improvements to the hostels at Germiston, Langlaagte and Pretoria were effected.

2. Living Conditions Affecting Native Labourers on Mines.

An important development in this connection is the promulgation under Government Notice No. 1119 of the 12th July, 1940, of the " Regulations for the Control of Native Married Quarters on Mines and Works throughout the Union ". Under the same notice the pre-existing regulations, a number of which had been promulgated for different districts and which lacked uniformity, have been rescinded. The drafting of the new regulations was referred to in last year's report, and it was then pointed out that the regulations were drawn up after prolonged and careful consideration by the representatives of all interested parties.

The development of Native married quarters is prone to occur in an uncontrolled fashion and this applies especially to the country districts where scattered collections of Native huts make their appearance on the veld in the vicinity of mines. From a public health point of view the conditions in these unauthorised locations are very unsatisfactory as little or no control is exercised as a rule over the layout or the building of the individual huts. Sanitation and other health conditions are generally of a very primitive nature and such as favour the spread of infectious disease. Thus conditions arise which may become a menace to the location inhabitants, the other mine employees and, in fact, to the community at large. The problem also has a grave sociological significance. These uncontrolled locations become the habitation of loose-living women practising prostitution and selling " skokiaan " to the Native labourers. The procreation of large numbers of illegitimate children who will grow up without proper parental control forms a serious menace to the welfare of the community.

The regulations provide a considerable measure of control, the necessity of which has long been appreciated. The control is exercised by the Director of Native Labour and this Department, acting in an advisory capacity to him on public health matters, will be able to assist in improving the health conditions. The regulations provide that locations may not be established except with the prior approval of the Director of Native Labour and in accordance with plans which must be submitted. They also require employers who have existing Native married quarters to make application for their approval within 6 months. Further, employers are required to establish married quarters for such of their married labourers as reside with their families provided, however, that the Director may, in his discretion, grant exemption from this requirement. The regulations provide for the conduct and control of the married quarters and an important requirement is that the ownership of such quarters shall in all cases vest in the employer.

The minimum building requirements are contained in an annexure to the regulations and while these are not exacting they provide for a reasonable standard of construction. A great deal is, however, left to the discretion of the Director. It was felt that this was necessary owing to the great diversity of conditions under which the married quarters are established, some being in essentially rural areas, while others are in the immediate vicinity of large towns. In regard to the mines which are within municipal areas the intention is to excise the locations from the area controlled by the Natives (Urban Areas) Act in terms of Section 26 (*g*) of that Act. The interests of the local authority are, however, adequately safeguarded in that the regulations provide that where married quarters are established within a local authority area the plans shall conform to the by-laws in operation in such area. The regulations are a definite advance and it is hoped that by their application it will be possible to improve greatly the present unsatisfactory state of affairs.

3. NON-EUROPEAN HOUSING IN NATAL.

The condition under which non-Europeans are housed in rural areas in Natal have been under close supervision since 1935. It was estimated at that time that there were some 800 sugar-cane-growing properties; to this figure must be added approximately 100 wattle-growing farms. The rehousing of all industrially employed non-Europeans by the end of 1941 was aimed at, but the effect of the war will be to postpone this date for a number of years.

Of the 900 estates some 830 have been inspected and on approximately 700 of these some improvement has been carried out.

The following table reveals the progress achieved during the past five years:—

	Years 1935–38.	Year 1938–39.	*Year 1939–40.
New houses built	3,364	1,222	954
Houses improved	990	197	42
Houses demolished	1,942	739	107
Natives affected	11,654	6,467	3,534
Indians affected	2,730	484	547
Dependents	11,586	1,500	1,602
TOTAL	25,970	8,451	5,683

* These figures do not include those relating to the South Coast area.

It is satisfactory to be able to record that despite certain adverse factors operating during the past 12 months, the response by planters and estates has been most gratifying and many improvements have been effected.

Had it not been for the following facts the response would have been better:—

(*a*) The inspections of new properties is almost complete, but approximately 20 per cent. of those whose farms have been inspected are for various reasons unwilling to do anything to improve the housing conditions. It is the policy of the Department to overcome this by discussion rather than by prosecution. This necessitates a personal visit in each case, as a rule by a medical officer, but since the outbreak of war very few visits have been made.

(*b*) The rising cost of building materials has slowed down building. There is no doubt that many who would have erected new compounds have not done so owing to this increased cost.

(*c*) The uncertainty which prevailed as a result of the threat of war made many planters unwilling to expend large sums of money on schemes " which promised no immediate cash returns ".

Some of the more important advantages resulting from an improvement in housing conditions are:—

(*a*) Improvement in the general health of the labourers.

(*b*) Lowered sickness rate owing to better facilities such buildings offer in controlling malaria and typhus.

(*c*) A contented labour force.

The more enlightened planters have been quick to realise this and in addition to good housing have provided a piped water supply, proper sanitary accommodation, suitable cooking facilities and an ample, well-balanced diet.

A small number regard the capital thus spent as wasted. It is these who continually complain of a shortage of labour, a complaint rarely made by those who have provided suitable accommodation and other amenities.

The number of estates on which reasonably safe piped water supplies are provided is gradually increasing as the owners come to realise the potential dangers of an unprotected source, e.g., a stream or spring. On many of the larger estates treated (filtered and/or chlorinated) water is supplied.

There still exists a certain number of planters who maintain that the Native will not use a latrine and cannot be taught to do so. The experience gained on those estates where proper sanitary accommodation has been provided and proper supervision is exercised, amply contradicts and disproves that statement. Given the necessary care and attention required for any latrine, whether for European or non-European use, it has been found that Natives will make use of them. Water-borne sanitation with septic tanks is being provided by the large estates. Private planters are doing so too. This is most gratifying.

It has been amply proved that the Native is not only willing to accept, but is also capable of profiting by health instruction. This natural desire and aptitude for acquiring knowledge should be exploited to the full. Planters could be of immense help here.

From enquiries made it would appear that there is considerable variation in the quantity and variety of rations issued on these estates. It is proposed to go into this question and to endeavour to introduce a more standardised ration scale containing the essential elements of a well-balanced diet.

During the year the Department of Labour issued a report on " An Investigation into Working Conditions, Housing, etc., in the Sugar Industry ". This admirable report did not, however, reveal any conditions of which the Health Department was not fully aware, nor did it indicate any further action which the Department could take other than was already being taken under its five-year plan which commenced in 1936.

Native Housing under Railways Administration.

Some progress was made during the year. On the Natal system a survey of non-European housing was carried out with a view to the preparation of a replacement programme. In the Health Inspector's report wood and iron accommodation at 121 stations was recommended for replacement. In the Union 155 new buildings were provided, including three sets of Native barracks on the Cape Northern system and 24 brick houses and 10 single rooms in the Waterval Boven Location. At Klipheuwel quarry the contractor was prevailed upon to substitute the totally unsatisfactory Native huts made of motor-car packing cases by wood and iron structures properly lighted and ventilated and to provide adequate latrine, bathing and laundry facilities. Provision was made by the Administration for an adequate and potable water supply.

As also in the case of European housing, much still remains to be accomplished and, as indicated in a previous report, there is need for the formulation of a definite policy for the different categories of non-European housing, namely (*a*) location for non-European familied servants, (*b*) housing for gangs at stations and in section, and (*c*) housing at contractors' camps, quarries, etc.

The special (Cheadle) Committee, appointed to investigate the conditions of service of non-European railway employees reported recently on the desirability of the setting aside by the Administration of special funds for the provision of more satisfactory housing for non-European servants. Apart from the question of a good living wage, there is nothing which any servant appreciates so much as a reasonably comfortable and hygienic place of abode for himself and his family. As the stabilising influence for non-European labour, the provision of decent housing accommodation would be a good investment.

Local authorities have been looked to to provide suitable accommodation in their locations, but experience has shown that they have not infrequently been unable to provide an adequacy of such accommodation. In such cases the Administration should not hesitate to act independently. In this connection an important point is the close collaboration with the local authority concerned and the Native Affairs Department, particularly where the Natives (Urban Areas) Act applies. Unless there is a good reason for locating railway locations in a separate locality under railway control, it is probably preferable to co-operate with the local authority as regards their control and where possible for railway locations to be sited within or adjacent to municipal locations and controlled by the same authority. An example of the latter co-operation was commenced at Kimberley during the year when the Administration hired land in the municipal location with a view to erecting houses for its employees. An agreement setting out the conditions of occupation has been concluded. This case would be a very suitable one upon which to base future schemes of this kind.

4. Rural and Peri-urban Sanitary Conditions.

This matter was dealt with at some length in last year's report and since then two important developments have taken place. The first is the publication of the Report of the Committee to consider the Administration of Areas which are becoming urbanised but which are not under Local Government Control and the other is the promulgation of the Rural Sanitary Regulations which have been framed under the Public Health Act.

The report of the committee on areas which are becoming urbanised is available to the public but it will not be out of place to draw attention to some of the more far-reaching recommendations. The committee found that the majority of the problems arising in areas not under local government administration " were due to ' irregular urbanisation '—a process occurring in all the provinces of the Union " and that " the commonest feature of these problems . . . was the menace or potential menace to the public health ". The committee also found that " one of the main factors responsible for irregular urbanisation has been the lack of adequate housing in the towns " and recommended that further financial commitments should be made by the Government for housing purposes. In regard to Native " squatting " the committee recommended that attention should be given to the application of existing legislation for the prevention of this evil.

The problem of irregular urbanisation is discussed in some detail and attention is drawn to the fact that the various townships boards " have been far too prone to recommend the establishment of townships in and in the neighbourhood of existing urban areas before the intervening areas have been developed, thus, in some instances, adding gravely to the future burdens of local authorities ". The health implications of this tendency were discussed in last year's report when attention was also drawn to the necessity for public health representation on all the townships boards. The evasion of the provisions of the various provincial ordinances dealing with the establishment of townships by the leasing of unsurveyed portions of land for occupation without sub-division is discussed. This practice is a serious menace to public health and it is only in the Transvaal that it can be prevented by law. The committee recommended that legislation designed to control it should be passed in each of the other provinces. It also drew attention to the need for the provincial administrations keeping " in closer touch with local authorities on matters other than those relating to audit " and recommended that " in certain cases the initiative in extending urban boundaries should be taken by the Administrator ".

Detailed recommendations are made in regard to a very large number of specific problems in various localities and it is impossible to mention all the matters dealt with. On account of its importance, however, it will not be inappropriate to refer to the recommendations made in connection with the very extensive peri-urban problem in the vicinity of the Witwatersrand and Pretoria. The committee recommended that " a nominated local authority consisting of five members should be established in respect of the whole of the peri-urban areas " referred to. The suggested extent of the area is defined, but it is recommended that this should be capable of adjustment. It is suggested that the proposed local authority should be called the " Witwatersrand and Pretoria District Health Board " and that it should have " sanitary powers and a decentralised staff ". Its main purpose would be to act as a " public health authority charged with the maintenance of the health of the inhabitants of its district ". It is abundantly evident that public health control is urgently needed in this extensive and rapidly developing area and it is felt that the recommendations of the committee afford a practical solution of a very difficult problem. The committee drew attention to the fact that " inspections carried out substantially confirmed the evidence to the effect that many agricultural holdings were being used for residential purposes only ". The legal position and suggestions for overcoming the present unsatisfactory state of affairs are discussed.

The report comprises a valuable document containing a large number of sound recommendations on a subject of the utmost importance from a public health point of view. It is feared that the financial stringency caused by the war may delay the putting into effect of the committee's recommendations. This is a grave consideration as the conditions found will undoubtedly become worse unless steps are taken to prevent this in the near future.

The Rural Sanitary Regulations framed under the Public Health Act were promulgated under Government Notice No. 1257 dated 25th August, 1939, and are in force throughout the Union, except in the areas of urban local authorities and in areas scheduled under the Natives Land Act or on any land vested in or purchased by the South African Native Trust and Land Act. These regulations deal with the usual sanitary matters and prohibit the creation of nuisances and conditions of gross insanitation which are liable to be a danger to health. As indicated in last year's report, such conditions are apt to be prevalent in rural and peri-urban areas and, if it is possible to enforce the regulations adequately, this should do a great deal towards improving the position. The chief difficulty, however, is the lack of machinery for enforcing such regulations in rural areas. This difficulty will, to some extent, be overcome if the recommendations of the "urbanised areas committee" are given effect to. Even if this is not done at present, the regulations do at least give powers to rural local authorities in the Cape Province, and to Magistrates and police officers acting under their jurisdiction in the other provinces, to take steps where any contravention is known or found to exist.

Rural Business Premises.

Arising out of a request by the Magistrate of Pinetown in 1938, the Department decided to embark upon a campaign of inspection of all rural business premises throughout Natal and Zululand. This was accordingly begun during the winter months (when malaria is at its ebb and the inspectors are free for other work) of 1939 and 1940. The results of such inspections to date are given in the following table:—

Districts.	*General Stores.*	*Butcher Shops.*	*Slaughter Poles.*	*Bakeries.*	*Dairies.*	*Total.*
29	350	147	85	3	3	588

The premises are inspected by the departmental field inspectors; reports are submitted to the Durban office for scrutiny and are then forwarded to the local Magistrate for disposal. A notice is served on the occupier requesting him to carry out the Department's recommendations. As the local Magistrate is usually also the Chairman of the local Rural Licensing Board, very little difficulty is being experienced in inducing the shopkeepers concerned to improve their premises. Very few prosecutions have been necessary. These inspections have shown that, generally speaking, rural stores (or food depots) stand in great need of improvement, the principal defects being lack of rodent proofing, deficiency of light and ventilation, poor storage of foodstuffs, and general structural defects. Lack of ordinary sanitary facilities is also noticeable.

The departmental field staff is fortunately placed in Natal and intensive routine inspections of rural premises are easily maintained over a very wide area. The other provinces, with the exception of the northern Transvaal, are less fortunate because of the vast areas they encompass and the limited nature of the field organisation maintained for the more serious epidemic problems in their individual territories. However, the excellent lead given by Natal in following such a simple method of eradicating unhygienic food handling and the insanitary states which are invariably found in rural business premises could profitably be adopted in the other provinces by closer co-operation between their licensing boards and this Department.

5. NATIVE HEALTH AND MEDICAL SERVICES.

(*a*) *Native Medical Aids.*

Five years ago a four-year course in medical subjects was introduced at Fort Hare for the training of matriculated Natives to enable them to be posted to areas which had no medical service. They were to work under the supervision of qualified practitioners and assist in bringing cases of infectious and other diseases to notice; also, where feasible, to undertake simple forms of treatment.

In January, 1939, four Native students from Fort Hare began their final year at McCord Hospital in Durban, and completed their training by the end of the year. In January of this year they were placed—one at Holy Cross Mission Hospital, Pondoland, one at Mkambati Leper Institution, Pondoland, one at the Bulwer Health Unit, Natal, and one at the Bochem Institution, Transvaal. At the beginning of this year four more Native students from Fort Hare began their final year's study at McCord Zulu Hospital. Dr. Gibson, who acted as tutor to the Native Medical Aids from the beginning of 1939, left at the end of June, 1940, and his place has been taken by Dr. Brohier from the West African Colonial Medical Service. The training of these students is supervised by this Department and it incorporates a most essential section of tuition in practical public health matters which it is hoped will be constructively applied in the Native areas to which they will be posted.

(*b*) *Native Health Service Unit, Bulwer.*

The Department has contemplated the establishment of three units in Native areas to serve as nuclei for the proposed expansion of medical and health services for natives.

Work on the first of the three units commenced near Bulwer in the Polela District of Natal in April, 1940, when the medical officer took up his duties in that area. The doctor is assisted by one of the recently trained Native Medical Aids and five Native Health Assistants. No Native nurses have been employed as yet because of difficulties regarding accommodation.

The unit is situated in an area known as Location No. 2, which is divided into five areas, each under a separate chief. The total population was stated by the Reclamation Committee to be 11,781 on 30th June, 1938, and the density of population is 145 per square mile.

All statements regarding the health of the people, the incidence of various diseases such as syphilis, tuberculosis, nutritional disorders and birth and mortality rates are merely matters of opinion and impressions. There is no system of vital records and hence no statement can at present be made which would in any way be likely to conform to the actual state of affairs.

In order to remedy these defects the unit is slowly building up a system which it is hoped will in the course of time furnish reliable vital records. The first stages have already been started. Each health assistant is provided with a map of a small area in which he is to work. On this map he fills in the following details: Site of " umuzi " (homestead) and the name of the head of the umuzi. It had been hoped to record the number of people, sex and age of each family unit, but the suspicions of the people have led to the above modification at the outset. The plan thus being drawn up of the locality and distribution of " imizi " has now included some 300 family units. A system of checking and revisiting has been elaborated and has shown already that it is essential if accurate records are to be maintained. These revisits serve a further purpose of discussing any questions which the people have, following their discussions after the previous visit. Furthermore, they will thus become accustomed to visits by the staff and will slowly lose their fear. This is already evident in those who have been visited a second time.

When completed this skeleton plan will form the nucleus on which population records (births, deaths, age and sex distribution, etc.), as well as epidemiological knowledge will be based. Furthermore, it will assist us in measuring the degree of success which these essentially propaganda visits is having, e.g., the number and sites of pit privies—the number of babies born by mothers who make use of ante-natal and midwifery services offered, etc. The plan also provides a simple method of tracing persons to their homes for follow-up treatment, etc. All cases visiting the medical officer for treatment and all school children examined are asked the name of the head of their " umuzi " and any such person's home can thus be easily located. Such knowledge is essential to the successful functioning of any health organisation and it has, therefore, been considered as the basis of all future activities. Until all persons have such an " address " to their place of dwelling, health work must remain disorganised and haphazard.

Health Services.

In addition to the Health Unit, the following are the health and medical services available.

District Surgeon.

A part-time district surgeon serves the whole district of Polela, and Location 2 forms a part of this area.

Hospital Facilities.

(*a*) The Roman Catholic Mission runs a hospital at Centocow. This institution lies at a distance varying from approximately 20-45 miles away from the homes of the majority of the Natives in Location 2. It is a well-built and almost luxurious institution of its kind. There is no resident medical officer and the hospital has a trained sister in charge. The district surgeon pays frequent visits. From all accounts it would appear that the Natives do not avail themselves of the facilities thus provided to any great degree. This latter statement probably applies even more to the Natives of Location 2—the great distance being a possible explanation of this.

(*b*) It appears that a fair number of Natives travel to the Pietermaritzburg hospital, which is some 40-50 miles away. The establishment of the health unit's central clinic in the heart of Location 2 should ultimately do much to relieve this hospital of many cases with minor ailments.

Other Services Available.

In addition to the abovementioned services, there is also a large army of " inyangas " attending to the needs of the people. They appear to have considerable power in the area and no doubt will assist in keeping a good number of people in a state of anxiety about the purpose of the health unit. It is as yet too early to make any statement on the harm or otherwise caused by these " inyangas " and other Native doctors, such as diviners. Study of their methods, numbers and their power is proceeding slowly.

The relationship between the health unit and local health authorities, such as the Native Commissioner and the district surgeon is as yet undefined. Definition and co-operation will, no doubt, grow as the health unit advances with its work and becomes an established part of health organisation and propaganda in this district.

Field Work (*Educational*).

The health assistants, when visiting the homes of the people, in addition to "mapping" as already described, discuss various matters relating to the health of the family and tribe. At the outset they explained to the people the aims and objects of the health unit. However, in view of the prevailing ignorance and superstition it was decided that the best results would be obtained by dealing with one specific subject at a time. Any attempts to convert the people to modern concepts of health—preventive and curative—being considered to be beyond their understanding at present, a uniform system of work was introduced. Furthermore, in order to bring about some measurable results a specific topic was decided upon, rather than to allow each health assistant to discuss any particular subject he or they wished. In view of the somewhat crowded state of dwellings and evidence of extensive cysticercosis infection of cattle and pigs, as well as summer diarrhoea of infants, the campaign was started with an intensive educational drive for the need of building lavatories (pit privies) and compost making of cattle and horse manure and garbage. This has involved many hours of discussion every day on these problems and the danger of the fly as a disease carrier. Any questions, other than these, which are raised by the people are, of course, discussed and often the health assistants report problems brought up which they were unable to solve. The main drive, however, is in the direction indicated. Models of pit privies and compost pits, indicating methods of construction have been built at the health unit's headquarters—these are open to inspection by the people and several have been to see them and consulted with the health unit's staff on methods of building, etc. A squatter type of privy (as well as a seat type—for those wishing it) has been designed. A concrete slab is to be made in a mould in process of construction. It is hoped later to obtain the co-operation of the Native Affairs Department in the making of these concrete slabs which can then be supplied to the Natives at very low cost. This would form the main expense in construction. The pit must be dug by the people themselves, and in place of the recommended galvanised iron liner, a stone foundation has been suggested. No rigid requirements can be made at this stage and any fairly suitable device will be encouraged in the belief that the important thing in their present state of knowledge is to make the population conscious of the need for these elementary sanitary measures. Improvements in design and construction will, no doubt, follow when the people have learned to appreciate the value of improved sanitary habits.

In addition to these important home visits of the health assistants, the medical officer has held several meetings with chiefs and their people. These have been largely devoted to explanation of our intended work, and have more often than not ended in attempts to allay their fears of further Government activity. These people show an appalling state of ignorance as to Government activities in relation to their own affairs.

School Health Service.

After consultation with the chief inspector for Native schools in Natal (Mr. D. Malcolm), a school health service was planned. The scheme was sanctioned by the provincial authorities. At the outset the service is to be confined to schools in or near Location 2. The aims of the service are, briefly, as follows:—

(*a*) Regular "medical" and "hygienic" examinations of all school children and teachers.

(*b*) Advice to parents and teachers following these examinations regarding medical attention, if needed, cleanliness of child, feeding, etc.

(*c*) Examination of school buildings, environs, sanitation, etc., and advice concerning improvements needed.

(*d*) Examination of the possibilities of school gardens, their extension and the use made of vegetables grown. The possible development of a school vegetable meal in those schools growing vegetables.

(*e*) Fairly intensive courses in hygiene and sanitation for teachers and advanced students. Preliminary practical courses in personal hygiene for smaller children.

(*f*) Visits to the homes of the children will form an important part of the service.

Up to the 30th June, 1940, 300 children had been examined. The examination included measurements of height, weight and several other somatometric measurements of importance, as well as a rapid clinical examination. In a certain number of cases laboratory examinations of faeces, urine and blood were undertaken. In view of the suspicion and, at times, frank antagonism of parents, complete examinations will not be performed as a routine until such time as the people show more confidence in the health unit. Teachers and heads of mission institutions are co-operating whole-heartedly and, in spite of the earlier opposition of some parents, there can be no doubt that the health service for school children will become, in due course, a welcome advance in the area.

General.

During the three months in which the unit can be considered to have been working, many problems have been tackled and several solved. The site chosen for establishing the headquarters of the unit could not have been improved, for it is, as previously mentioned, in the heart of a location.

6. Child Mortality.

This year there has again been an increase in the birth-rate and a decrease in the infant mortality rate for the whole Union, the decrease in mortality rate being from 51·69 in 1938 to 49·48 in 1939—see Tables 1, 4 and 29.

Taking the provinces separately there has been an increase in the number of births registered—in all the provinces except the Orange Free State, where fewer births were registered than last year. In this province, too, there has been an increase in the infant mortality rate from 43·82 in 1938 to 45·00 in 1939. The most striking decrease in the death-rate among infants occurred in Natal, where the infant mortality rate is 37·23 for 1939 as opposed to 49·67 for 1938.

The above applies to Europeans only—figures for non-Europeans are still not available.

7. Maternal Morbidity and Mortality.

Table 28 shows that there is still a steady decrease in maternal mortality, i.e. 3·61 for 1939 as against 3·69 for 1938. The decrease is not as great as last year.

These figures are a ratio of the total number of deaths from all puerperal causes during pregnancy, labour or the puerperium, to the number of live births registered and not to the actual number of pregnancies which occur and is, therefore, not an accurate estimate of the death-rate amongst pregnant women. It will be seen from Table 30 that there have been considerably fewer deaths from post abortive sepsis and puerperal haemorrhage but more deaths from other causes.

The following are areas which have been prescribed under section 39 (*b*) of Act No. 13 of 1928 and where only medical practitioners and registered midwives are allowed to practise midwifery:—

Pretoria, Bloemfontein and East London.

The regulations for midwives which are in force in all urban local authorities in the Union have been extended to the rural local authorities of—

(1) the Cape Divisional Council,
(2) Knysna,
(3) Caledon, and
(4) Clanwilliam.

Although many of the larger towns are getting rid of the untrained women practising midwifery in their areas and allowing only trained midwives to practise, there is still a shortage of trained midwives and nurses and in many of the smaller country towns there is not even one trained nurse or midwife and all the midwifery is done by the old untrained women.

More provincial hospitals are providing beds for normal maternity cases, but as yet these in no way meet the demand.

The Department has therefore still to register so-called nursing homes in country towns which are far from satisfactory but which are the only means of bringing country women within reach of doctor and nurse at the time of their confinement.

The annual grant of £1,000 to the South African National Council for Maternal and Family Welfare was again renewed this year.

Table 28.—Maternal Mortality: Europeans.

Year.	Live Births Registered.	Deaths due to Puerperal Causes.				
		Number.		Rates per 1,000 Live Births.		
		Puerperal Sepsis.	Other Puerperal Causes.	Puerperal Sepsis.	Other Puerperal Causes.	Total Puerperal Mortality.
1926..........	43,876	88	112	2·06	2·50	4·56
1927..........	44,347	101	112	2·28	2·53	4·81
1928..........	44,809	102	121	2·28	2·70	4·98
1929..........	46,219	140	103	3·03	2·23	5·25
1930..........	47,536	119	131	2·50	2·76	5·26
1931..........	46,423	116	102	2·50	2·20	4·70
1932..........	44,944	126	113	2·80	2·51	5·31
1933..........	44,519	113	101	2·54	2·27	4·81
1934..........	44,878	121	148	2·69	3·30	5·99
1935..........	47,717	119	107	2·49	2·24	4·73
1936..........	48,630	116	132	2·39	2·71	5·10
1937..........	50,878	99	124	1·94	2·44	4·38
1938..........	52,065	78	114	1·50	2·19	3·69
1939..........	53,517	69	124	1·29	2·32	3·61

TABLE 29.—EUROPEAN INFANTS: BIRTHS AND DEATHS UNDER ONE YEAR REGISTERED AND INFANTILE MORTALITY RATE, I.E. DEATH RATE PER 1,000 BIRTHS, 1919-1939.

Year.	Cape.			Natal.			Transvaal.			Orange Free State.			Union.		
	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.	Total European Births Registered.	Deaths of European Children under One Year.	Death-rate per 1,000 Births.
1919..............	16,749	1,351	80·66	2,910	191	65·64	15,338	1,326	86·45	4,727	382	80·81	39,724	3,250	81·81
1920..............	18,425	1,654	89·77	3,256	235	72·17	16,768	1,576	93·99	4,996	448	89·67	43,445	3,913	90·07
1921..............	18,062	1,382	76·51	3,370	203	60·24	16,582	1,374	82·86	5,288	379	71·67	43,302	3,338	77·09
1922..............	18,248	1,294	70·91	3,294	180	54·64	16,370	1,292	78·92	4,920	357	72·56	42,832	3,123	72·91
1923..............	18,296	1,353	73·95	3,229	197	61·01	15,619	1,261	80·74	5,037	328	65·12	42,181	3,139	74·42
1924..............	18,730	1,296	69·19	3,410	273	80·06	15,287	1,171	76·60	4,919	382	77·66	42,346	3,122	73·73
1925..............	18,366	1,343	73·12	3,509	206	58·71	16,348	1,059	64·78	5,188	361	69·58	43,411	2,969	68·39
1926..............	18,675	1,196	64·04	3,588	189	52·68	16,304	1,186	72·74	5,309	273	51·42	43,876	2,844	64·82
1927..............	18,537	1,293	69·75	3,435	166	48·32	17,050	1,359	79·71	5,325	314	58·97	44,347	3,132	70·63
1928..............	18,032	1,240	68·77	3,514	184	52·36	17,949	1,370	76·33	5,318	365	68·63	44,813	3,159	70·49
1929..............	19,008	1,169	61·50	3,650	177	48·49	18,227	1,342	73·63	5,334	280	52·49	46,219	2,968	64·22
1930..............	19,468	1,332	68·37	3,641	159	43·65	19,108	1,386	72·54	5,317	300	56·42	47,534	3,177	66·84
1931..............	19,180	1,182	61·63	3,538	162	45·79	18,733	1,267	67·65	4,975	317	63·72	46,423	2,928	63·07
1932..............	18,284	1,205	65·90	3,373	204	60·48	18,376	1,402	76·30	4,911	271	55·18	44,944	3,082	68·57
1933..............	17,931	995	54·49	3,441	166	48·24	18,452	1,266	68·61	4,695	299	63·68	44,519	2,716	61·01
1934..............	17,642	1,022	57·93	3,310	157	47·43	19,327	1,279	66·18	4,599	270	58·71	44,878	2,728	60·79
1935..............	18,242	1,016	55·70	3,441	167	48·53	21,109	1,537	72·81	4,925	277	56·24	47,717	2,997	62·81
1936..............	18,162	980	53·96	3,606	189	52·41	22,192	1,454	65·52	4,670	249	53·32	48,630	2,872	59·06
1937..............	18,404	1,012	54·99	3,766	175	46·47	23,814	1,439	60·43	4,894	252	51·49	50,878	2,878	56·57
1938..............	18,727	962	51·37	3,886	193	49·67	24,568	1,322	53·81	4,884	214	43·82	52,065	2,691	51·69
1939..............	19,022	984	51·73	4,056	151	37·23	25,795	1,304	50·55	4,644	209	45·00	53,517	2,648	49·48

Table 30.—European Deaths from Puerperal Causes by Age Groups.

Causes.	1938.								1939.							
	All Ages.	15–19.	20–24.	25–29.	30–34.	35–39.	40–44.	45 and Over.	All Ages.	15–19.	20–24.	25–29.	30–34.	35–39.	40–44.	45 and Over.
Post Abortive Sepsis	31	2	3	9	7	8	2	—	19	3	3	4	4	3	2	—
Abortion—not returned as Septic	8	1	1	3	2	1	—	—	8	—	1	1	1	3	2	—
Ectopic Gestation	8	—	—	4	2	1	1	—	13	—	2	3	5	2	—	1
Other Accidents of Pregnancy	1	—	1	—	—	—	—	—	3	—	1	2	—	—	—	—
Puerperal Haemorrhage	35	—	3	9	6	12	2	3	26	—	6	9	5	5	1	—
Puerperal Sepsis	47	3	12	13	10	4	2	3	50	—	15	12	7	13	3	—
Puerperal Albuminuria and Convulsions	30	1	5	9	6	4	4	1	32	4	5	6	6	6	5	—
Other Toxaemias of Pregnancy	4	1	—	—	3	—	—	—	7	—	1	3	2	—	1	—
Puerperal Phlegmasia—Alba Dolens, Embolism and Sudden Death	7	—	—	2	2	3	—	—	11	—	2	2	3	2	2	—
Other Accidents of Childbirth	20	1	4	3	6	5	1	—	22	—	3	6	5	4	4	—
Other or Unspecified conditions of the Puerperal State	1	—	—	1	—	—	—	—	1	—	—	—	1	—	—	—
Puerperal Diseases of the Breast	—	—	—	—	—	—	—	—	1	—	1	—	—	—	—	—
Total	192	9	29	53	44	38	12	7	193	7	40	48	39	38	20	1

8. NURSING AND MATERNITY HOMES.

Routine inspections of nursing and maternity homes—see Table 31—are still being carried out, 132 having been done by the Department's officials and 92 by full-time medical officers of health and their staffs, making a total of 224 inspections out of 385 registered nursing homes.

Fewer nursing homes were inspected this year than last year because (*a*) the Department was without a Medical Inspector of Maternity and Child Welfare for four months, and (*b*) the steady increase in district nursing services takes more and more of the inspecting officials' time.

Tables 32, 33 and 34 give a rough estimate of the bed accommodation available in, and the personnel of, registered nursing and maternity homes. These figures, of course, are constantly changing.

Mission hospitals are not required to register but are encouraged to do so and many are applying for registration.

TABLE 31.—NURSING AND MATERNITY HOMES INSPECTED DURING THE YEARS ENDED 30TH JUNE, 1936, 1937, 1938, 1939 AND 1940 RESPECTIVELY.

Place.	Inspections.									
	By Medical Officer of Local Authority.					By Departmental Medical Officer.				
	1936.	1937.	1938.	1939.	1940.	1936.	1937.	1938.	1939.	1940.
Cape Province.										
Capetown	4	7	11	27	22	—	—	—	—	—
East London	4	4	6	7	4	—	—	—	—	2
Port Elizabeth	8	14	5	5	4	—	—	2	—	—
Elsewhere	—	3	—	—	1	34	81	35	73	57
Natal Province.										
Durban	—	11	18	17	11	—	—	1	—	—
Pietermaritzburg	—	3	3	—	—	—	—	—	—	—
Elsewhere	—	—	—	—	—	24	2	27	15	15
Transvaal Province.										
Johannesburg	2	54	43	36	28	—	2	4	—	—
Other Rand L.A.'s	—	—	9	6	14	—	—	4	—	—
Pretoria	5	13	7	5	7	—	—	—	—	1
Elsewhere	1	5	—	—	1	65	30	54	40	34
Orange Free State.										
Bloemfontein	—	—	—	—	—	—	—	5	4	4
Elsewhere	—	—	—	—	—	29	8	25	36	19
UNION	24	114	102	103	92	152	123	157	168	132

TABLE 32.—NURSING HOMES REGISTERED WITH THE DEPARTMENT.

Year.	Cape.	Transvaal.	Natal.	Orange Free State.	Total.
1929	104	90	43	26	263
1930	124	91	54	29	298
1931	110	98	51	25	284
1932	95	94	44	26	259
1933	105	100	46	25	276
1934	115	103	43	28	289
1935	126	128	42	28	324
1936	120	116	46	34	316
1937	134	120	49	35	338
1938	140	126	55	55	376
1939	147	124	61	48	380
1940	146	125	62	52	385

TABLE 33.—BED ACCOMMODATION AVAILABLE IN NURSING HOMES.

Province.	1938.		1939.		1940.	
	European.	Non-European.	European.	Non-European.	European.	Non-European.
Cape	1,427	117	1,230	262	1,340	231
Transvaal	1,596	217	1,325	240	1,277	194
Natal	655	711	803	629	655	615
O.F.S.	284	13	166	18	187	3
TOTALS	3,962	1,058	3,524	1,149	3,459	1,043

TABLE 34.—PERSONNEL OF NURSING HOMES.

Province.	European.		Non-European.	
	Qualified.	Unqualified.	Qualified.	Unqualified.
Cape	325	178	9	49
Transvaal	329	238	4	41
Natal	175	130	10	87
O.F.S.	49	14	—	—
TOTALS	878	560	23	177

9. DISTRICT NURSING SERVICES.

Table 35 gives the position of the district nursing services at 30th June, 1940. It will be noticed that the number of nurses appointed under sections 13, 14 and 15 of Act No. 57 of 1935 has increased from 362 to 438.

Under section 13 twenty more nurses have been appointed by hospital boards this year.

Under section 14 there is still a steady increase in appointments, i.e. an increase of twelve under section 14 (*a*) and an increase of fourteen under section 14 (*b*).

Under section 15 thirty new appointments have been made and most of these are Native nurses. This shows marked progress, but still more Native nurses are required for rural areas. A study of the position regarding the appointment of Native nurses in South Africa was initiated by Dr. Drennan because of the important relationship there will ultimately be between these nurses and the new Native Health and Medical Services. A preliminary survey of training facilities was undertaken, and it is felt that more consideration should be given to the training of Native nurses, particularly in regard to Health Education work, than is at present the case.

Table 35.—District Nursing Service: Nurses, Midwives and Non-European Nursing Assistants as at 30th June, 1940, in respect of whom Subsidies or Part-Refunds of Salaries are Paid, compared with the Totals as at 31st December, 1935.

Race.	Part-refunds under section 14 (*a*).		Subsidies under section 14 (*b*).		Part-refunds under section 15 (*a*).		Subsidies under section 15 (*b*).		Part-refunds to Provincial Administrations under section 13.	
	1935.	1940.	1935.	1940.	1935.	1940.	1935.	1940.	1935.	1940.
European	23	94	7	81	—	17	—	—	—	98
Native	2	12	—	1	11	45	3	50	—	6
Coloured	—	7	1	5	—	1	—	1	—	20
All Races	25	113	8	87	11	63	3	51	—	124

10. GENERAL HOSPITALS.

The system of routine inspections on behalf of the Provincial Administrations of State-aided hospitals and kindred institutions in the Cape Province, Orange Free State and the Transvaal was continued during the year. As in previous years, the public hospitals of the Reef and in Pretoria were inspected by members of the Public Hospitals Advisory Council. The hospitals in Natal are State institutions, with the exception of one which is subsidised, and are not inspected by officers of this Department.

In the Orange Free State, the central hospitals at Bloemfontein and Kroonstad are now being administered directly by the Provincial Administration and local hospital boards have been dissolved at these two places. In future hospital inspection in the Orange Free State will probably be carried out by an officer of that Administration.

As in the past, this Department in consultation with the Department of Public Works, continues to give advice to the various Provincial Administrations on new hospital projects or on additions and alterations to existing hospital buildings.

The emergency conditions now existing in the country have naturally influenced hospital activities. In some cases they have curtailed development, in others increased hospital facilities are called for and are being provided. It is hoped that these developments will be recorded in future hospital reports.

11. DENTAL SERVICES.

The Dental Health Officer, Dr. T. Ockerse, resumed his duties on 27th November, 1939, after an absence of 9 months in America, where he had been studying dental health services and dental research. Dr. Ockerse visited the United States of America under the auspices of the Carnegie Corporation and the Union Health Department. A lengthy and detailed report on this visit entitled: " The problem of dental caries, with special reference to South Africa " was submitted and the main features are given here. From statistics obtained from countries all over the world, it has been proved that dental caries is the most prevalent of all diseases. The incidence of dental caries among the total population in the United States of America is reported to be over 95 per cent. The mental retardation of children and the depressing effect on adults caused by dental disease and oral sepsis have long been recognised by many countries, particularly in Norway, New Zealand, United States of America, Great Britain, France, Australia and Japan. In all these countries efficient and well-organised dental health services have been in existence for many years. The medical and dental professions and ministries of health have kept closely in touch with the development of these public dental health services, and the findings in all cases indicate that the active development of organised public dental health services has been a great factor in improving the general health and efficiency of the cities or states where they exist.

The existing dental health services rendered in modern clinics, hospitals and similar institutions in the United States of America are excellent, but cater only for a very small number of the 95 per cent. who require dental attention.

Health authorities, dental educators and leaders of the dental profession are now recognising the fact that as a public health problem, dental diseases are becoming more important. They are beginning to realise that the only solution of the problem of dental caries lies in prevention.

A great deal of dental research is carried on in the United States to-day by many investigators.

In South Africa few fully organised preventive and conservative public dental health schemes are in operation. Those that do exist have been developed in those areas where the dental professional bodies have themselves initiated dental health services and have been able to convince the local public authorities of the necessity for financial assistance. This lack of an organised dental health service is largely due to the usual attitude that it is sufficient to provide a simple extraction service, i.e., a form of casualty treatment. Little attempt has been made to treat the serious problem of dental caries as one requiring preventive measures. There is no proper public dental health education, and the need for oral hygiene is not sufficiently emphasised.

A certain amount of conservative dental treatment is provided in a few institutions and under the different provincial dental schemes, but it is evident that the system of applying the services will have to be drastically altered in order to change from a " casualty " to a systematised preventive service.

As the problem in South Africa is identical with that faced in America, similar efforts are advocated towards its solution, and these should include:—

(*a*) The extension and co-ordination of the existing dental health services.

(*b*) More dental health education and propaganda.

(*c*) Preventive dentistry.

As the problem of dental caries is so important from a national health point of view, it is essential that the Central Government should also assist in the extension of the existing services, which at the moment are wholly inadequate even to control dental caries, let alone reduce the incidence.

Public Dental Health Education.

There is no proper public dental health education, and the need for oral hygiene is not sufficiently emphasised.

The public should be educated to realise the importance of home oral hygiene, particular stress to be laid on the care of the mouth, *diet*, and the prevention of secondary conditions resulting from primary infection. A suitable series of lectures should be prepared, to be given to all teachers, health visitors and social workers generally. Assistance in furthering this dental health education can be given by the Department of Public Health, which has the necessary up-to-date material.

Preventive Dentistry.

The application of preventive dentistry should form a fundamental part of public health work. If the incidence of dental caries is to be properly controlled or the problem solved by determining the aetiological factors of dental caries, it is essential that efforts should be directed towards dental research. The problem is being tackled from that point of view in America to-day.

Dental research is practically non-existent in South Africa, and does not receive adequate assistance.

South Africa is unique in that it has excellent material for carrying out a comparative investigation of the incidence of caries amongst peoples of varying races, ranging from the primitive to the most highly civilised. The incidence of caries varies in the different areas from 17 per cent. to 100 per cent. in the Europeans, and from 0 per cent. to 100 per cent. in the non-Europeans.

After the survey of the incidence of dental caries has been completed, a detailed comparative study should then be made of the carious-immune people and those who suffer from rampant caries.

In addition, the information obtained from the surveys could be incorporated in, and applied to, experimental investigations with monkeys, because of the similarity between their dentition and the human, and because experimental diets for these animals can be easily controlled.

Excellent facilities for investigating and studying the problem exist in South Africa. The Medical and Veterinary Laboratories at Onderstepoort, the South African Institute for Medical Research at Johannesburg, the Dental School of the University of the Witwatersrand, the Division of Chemical Services of the Department of Agriculture and Industry, the Departments of Mines, Public Health and Irrigation can all assist and give valuable information relative to the above investigation.

South Africa lacks qualified dental research workers, and to train some enthusiastic dental students in America may assist in the solution of the problem.

On his return from America the dental health officer continued his survey of dental conditions in the Union which revealed the following findings:—

Province.	No. of Children examined.	No. of Children with Caries.	Percentage.	No. of Children needing Dental Attention.	Percentage.	Variation in incidence of Caries in different Districts.
O.F.S.........	5,868	4,938	82	4,134	70	62 to 96%.
Natal.........	4,418	4,225	96	3,596	81	87 to 100%.

Province.	Percentage of Children in Urban Areas with Caries.	Percentage of Children in Rural Areas with Caries.
O.F.S.......................	83	80
Natal.......................	97	95

In the areas with the largest number of children with mottled enamel in the Orange Free State the incidence of dental caries is lowest, i.e., Shannon and Dewetsdorp, which seems to indicate that there may be a relationship between fluorine in the drinking water and dental caries.

It is interesting to note that the dental condition of the Natal school children is much worse than that of the Orange Free State school children in spite of the fact that the incidence of malnutrition is lower in Natal than in the Orange Free State (according to the nutrition survey). This should be further investigated.

The dental health officer is, at the same time, making a survey of endemic fluorosis in the Union in order to ascertain what relationship exists between the incidence of dental caries and fluorine in drinking water. In many areas there are no dental health services available. Dr. Ockerse assists in organising dental health services under local or provincial schemes in the areas visited and his advice and services are always available. Talks on dental health matters are given to the children in the schools visited, but it is almost futile to stress and disseminate dental health education if there are no dental health services available. Dental health education and the treatment of dental caries are no solution to the serious problem and once again the urgent necessity for intensive dental research to endeavour to determine the preventable causes of caries is stressed. There are unique opportunities in South Africa for such investigation because the European and varied non-European population provide such a wide range of dental imperfections although they share common factors in environment.

12. THE SOUTH AFRICAN MEDICAL COUNCIL.

Résumé of Business for the Year Ended 30*th June*, 1940.

The half-yearly meetings of the Council were held in September, 1939, and April, 1940.

The Executive Committee has met ten times during the year, the Nursing, Midwives and Masseurs Education, Examination and Registration Committee four times, the Medical and Dental Education, Examination and Registration Committee twice and the Dental Committee once, besides which a number of sub-committee meetings were held as occasion required.

During the year the following registrations were effected:—

Medical Practitioners	237
Dentists	11
Medical Students	144
Dental Students	27
Dental Mechanicians	2
Nurses	864
Midwives	460
Masseurs	9

In addition, the following were restored to the registers after having been erased owing to their addresses being unknown:—

Medical Practitioners	20
Dentists	5
Nurses	125
Midwives	77
Masseurs	1

Of the medical practitioners registered by the Council 168 had qualified at the South African Medical Schools and of the remainder a number were South Africans who had proceeded overseas for the prosecution of their studies; of the dentists registered 5 had qualified at the University of the Witwatersrand; of the nurses registered 633 were registered after passing the Council's examinations and obtaining its certificate of competency. Similarly, 417 midwives were registered after passing the Council's examinations and obtaining its certificate of competency. A considerable number of nurses continues to come into the Union from overseas, although not to such a great extent as previously owing to war conditions. Of the nurses registered 231 held certificates from countries outside the Union and of those 129 came from England and Wales; 27 from the Netherlands and the remainder principally from Australia, New Zealand and Southern Rhodesia.

The number of persons whose names appeared in the various registers on the 30th June, 1940, were as follows:—

Medical Practitioners	3,343
Dentists	743
Medical Students	1,185
Dental Students	34
Nurses	7,048
Midwives	4,734
Masseurs	92
Dental Mechanicians	121

Examinations for nurses were held quarterly and for midwives half-yearly. The following table shows the number of candidates who presented themselves for the various examinations and the numbers who passed:—

SOUTH AFRICAN MEDICAL COUNCIL: CANDIDATES WHO PRESENTED THEMSELVES FOR EXAMINATION.

		Presented.	Passed.
Medical and Surgical Nurses	Final	537	508
	Preliminary	976	724
Male Nurses	Final	28	27
	Preliminary	40	30
Mental Nurses	Final	85	69
	Preliminary	251	157
Nurses for Mental Defectives	Final	25	24
	Preliminary	37	22
Fever Nurses	Final	5	5
	Preliminary	7	1
Midwives		479	417

Numbers of applications from medical practioners for registration as specialists are still being received. All such applications are investigated and considered by a special committee consisting of members of the Council who sit with advisory members appointed by the Medical Association of South Africa. The number of specialists registered during the year amounted to 49 and the total number of medical practitioners who are now registered as specialists is 375 which is equivalent to 11·2 per cent. of the total number of medical practitioners appearing in the register.

The Council has considered various cases of alleged unprofessional conduct on the part of registered practitioners and in two cases decided to hold formal enquiries. These enquiries were not concluded before the 30th June, 1940.

In the previous report of the Council mention was made of the case of a dentist who was sentenced to erasure from the register but his sentence was suspended for a period of twelve months subject to good behaviour during that time. This case was reconsidered and the Council agreed to remit the sentence.

The Council has considered two applications for restoration to the register of medical practitioners from doctors who had been struck off the register and in both cases resolved to refuse the applications.

In view of representations which were made to the Council through the Minister for the establishment of a nursing council or board, or alternatively, increased representation of the nursing profession on the Council, it has been decided to reconstitute the Nurses, Midwives and Masseurs Education, Examination and Registration Committee of the

Council in order that this Committee may consist of fewer members of the Council. The Council will then co-opt two members of the nursing profession to sit as advisory members of this Committee.

The Council has decided to appoint an inspector of nursing education whose duties will be to visit systematically every training school for medical and surgical nurses and midwives and to report thereon to the Council. It is felt that this appointment will greatly assist training schools in overcoming many of their difficulties and will enable them to come into closer contact with the Council who, on its side, can advise them in matters requiring attention. The Council has added a few hospitals to the list of training schools which are recognised and various existing training schools have been inspected from time to time.

The Council unanimously resolved to appoint Mr. William Impey, who had been acting as Registrar, as permanent Registrar of the Council as from the 1st December, 1939.

13. The South African Pharmacy Board.

Résumé of Business for the Year Ended 30*th June,* 1940.

The usual half-yearly meetings of the Board were held in July, 1939, and January, 1940, and in addition four special meetings were held besides several meetings of the standing committee.

During the period under review the registration of 52 chemists and druggists, 22 managing directors of companies carrying on the business of chemists and druggists and 58 apprentices was effected. Of the chemists and druggists registered, 43 held the qualifying certificate of the Board and 9 the certificate of the Pharmaceutical Society of Great Britain, their registration being effected by virtue of the reciprocal agreement entered into with that body.

On the 30th June, 1940, the names of 1,512 chemists and druggists, 133 managing directors and 145 apprentices appeared in the Board's registers.

Examinations were held in December, 1939, and June, 1940. The following tables show the results:—

The South African Pharmacy Board: Preliminary Scientific Examination.

	Number of Candidates Examined.	Passed.	Failed.	Referred.		
				Botany.	Chemistry.	Physics.
Whole Exam	115	46	33	8	25	3
Botany	4	2	—	2	—	—
Chemistry	28	19	—	—	9	—
Physics	9	6	—	—	—	3

The South African Pharmacy Board: Qualifying Examination.

	Number of Candidates Examined.	Passed.	Failed.	Referred.		
				Pharmacy.	Chemistry.	Dispensing.
Whole Exam	69	27	19	7	5	11
Chemistry only	35	10	—	—	25	—
Dispensing	27	23	—	—	—	4
Pharmacy	2	2	—	—	—	—

The rules relating to the registration of chemists' apprentices were referred to the Pharmaceutical Societies in the Union and to the institutions at which courses of study for the Board's examinations may be taken and the Board has give due consideration to the views expressed by these bodies. Amended rules have been drafted and it is hoped that these will be promulgated at an early date. Under these amended rules chemists and druggists will be able to register apprentices irrespective of whether their pharmacies are situated in close proximity to teaching institutions or not. The most important changes of the amended rules are that apprentices will be required to make certain specified preparations in the pharmacy and the more difficult ones in the teaching institution. They will also be required personally to dispense at least 1,000 prescriptions, of which 200 will be of types specially laid down by the Board.

The Board has continued to deal with complaints received against registered chemists and druggists and 10 formal enquiries were held. In one case a chemist and druggist was cautioned, in one case one was reprimanded, in three cases chemists were reprimanded and cautioned, two were suspended from practice for a period of three months each, one for a period of twelve months and two chemists and druggists were erased from the register.

Three applications were considered for the restoration to the register of persons whose names had been erased and in all cases the applications were refused.

The Board appointed a Pharmaceutical Relations Committee of its members to attend the annual conference of the Associated Pharmaceutical Societies for the purpose of hearing discussions and advising, if necessary, on matters which come within the scope of the Board. The appointment of this Committee was for one year and the Board will decide whether the usefulness of this Committee is such that a permanent Pharmaceutical Relations Committee shall be appointed in future.

The Board unanimously resolved to appoint Mr. William Impey, who had been acting as Registrar, as permanent Registrar of the Board as from the 1st December, 1939.

14. ADMINISTRATION OF THE MEDICAL, DENTAL AND PHARMACY ACT, NO. 13 OF 1928.

Habit-forming Drugs.

From the time of the coming into force of the Medical, Dental and Pharmacy Act on the 1st January, 1929, the Department has been responsible for the administration of the sections dealing with habit-forming drugs.

The provisions of the Act relating to " dagga ", opium and other habit-forming drugs are enforced with the assistance of the Commissioner of Customs and Excise, the Postmaster-General and the Police and, with their active co-operation, much has been done to control the trade in these drugs and to restrict it to legitimate channels.

The following table indicates the number of prosecutions and convictions:—

TABLE 36.—PROSECUTIONS AND CONVICTIONS UNDER LAWS RELATING TO HABIT-FORMING DRUGS DURING THE YEAR ENDED 30TH JUNE, 1940.

	European.		Native.		Asiatic.		Other Coloured.		Total.	
	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.	Prosecutions.	Convictions.
Cape..........	49	43	670	611	19	14	1,351	1,321	2,089	1,989
Natal..........	18	15	3,175	3,074	103	99	111	106	3,407	3,294
Transvaal......	69	59	4,056	3,867	21	16	312	296	4,458	4,238
O.F.S..........	8	7	360	335	—	—	25	23	393	365
UNION...	144	124	8,261	7,887	143	129	1,799	1,746	10,347	9,886

The total number of convictions in the Union amounted to 9,886, of which 9,875 were in respect of " dagga " and 11 on account of opium and other narcotic drugs. The seizure of considerable quantities of *Cannabis sp.* (dagga) which were eventually destroyed gave rise to the above convictions. The small amounts of opium confiscated from persons on account of illicit possession were disposed of by informal tender to firms of chemists and druggists.

Narcotic drugs are not manufactured in the Union, supplies being imported mainly from European countries by pharmaceutical chemists. The quantities of such drugs imported during the year ended 30th June, 1940, were:—Raw opium, 109 lb. 1,313 grains; medicinal opium, 265 lb. 2,956 grains; opium in the form of extracts and tinctures, etc., 84 lb. 3,243 grains; cocae leaves, 50 lb.; Indian hemp in the form of galeical preparations, 112 lb.; morphine, 90 lb. 6,663 grains; diacetylmorphine, 35 lb. 4,808 grains, and cocaine, 2 lb. 4,413 grains.

Chapter VI of Act No. 13 of 1928 provides that on being satisfied that for medicinal or export purposes there is a reasonable and legitimate demand for any habit-forming drug which can be produced or manufactured in the Union, or for any plant or portion of a plant from which any such drug is derived, which can be cultivated, the Department may authorise the issue of licences for the cultivation or collection of such plants or for the export of such plants from the Union. One permit authorising the cultivation of *Cannabis sp.* (dagga), for export purposes, has been issued to date, but this has been cancelled in view of the fact that at the present time the stocks of the drug on hand are adequate to meet the demand.

Officers of the Department have carried out regular systematic inspections of the records relating to habit-forming drugs which must, by virtue of the provisions of the Act, be maintained by all persons legally using such drugs. Careful checking of the quantities of habit-forming drugs used for manufacturing and dispensing purposes has done much towards correcting the tendency to neglect the keeping up to date of records. Instances of failure on the part of pharmacists to record transactions of drugs in the form or register laid down by regulation still occur, but are less frequent than previously. Verbal warnings have, in most cases, been sufficient to rectify the matter. In cases where contraventions of the Act have occurred warranting strong action being taken, legal proceedings have been instituted, resulting in prosecutions.

When it is considered that medical practitioners, dentists, veterinarians and chemists and druggists, as the persons legally allowed to use narcotic drugs, render themselves liable, in addition to prosecution, to disciplinary action being taken against them by the Medical Council or the Pharmacy Board under the ethical rules laid down by the two bodies for any offence which, when regard is had to their profession or calling, is considered disgraceful, probably resulting in loss of professional status, it would seem that contraventions of the law should be fewer than at present.

Investigation has revealed that large stocks of narcotic drugs are kept in nursing homes for the use of medical practitioners who may be treating patients in such institutions. Supplies are obtained on the signed orders of medical practitioners for general use. The Act allows a medical practitioner to prescribe such drugs for a patient in the institution, but places the responsibility for its use on the individual medical man. Bearing this fact in mind, it will be undertood that by ordering habit-forming drugs, not for his own personal use, but for use in a nursing home, a medical practitioner makes himself responsible for such drugs which may be used by another medical practitioner. This matter, with the co-operation of the medical officers of health in such centres where powers have been delegated to inspect nursing homes, is being taken up by the Department.

Poisons.

The provisions of Chapter V of Act No. 13 of 1928 and the regulations framed thereunder relating to the stocking, sale, and labelling of poisons and preparations containing poison, no longer appear to present as much difficulty of interpretation as hitherto to general dealers, who have been issued with certificates under section 51 to stock and sell certain poisons. This, no doubt, is due to the constant visits and explanation of difficulties by the inspectorate staff. As the provisions of the Act in this respect are mainly for the protection of the public, the numerous instances of illegal stocking and sale of preparations containing poison coming to notice are dealt with usually by the issue of warnings in the case of a first offence while subsequent offences are referred to the police for the institution of legal proceedings.

The position in regard to the sale of certain substances by persons who have not the knowledge of their properties or dangers, entailing grave risk to the public health, has been partially remedied by the inclusion in the poison schedules of the following drugs:—

To be added to Division I:—

Sulphanilamide (para-aminobenzenesulphonamide) and its salts: derivatives of para-aminobenzenesulphonamide having one or both of the hydrogen atoms of the para-amino group or the amide group substituted by other radicals, and their salts under whatever name they may be described or sold.

Dinitrophenols and preparations or admixtures containing dinitrophenols.

Cocculus indicus or fish berries.

To be added to Division II:—

Croton oil.

The preparations thus require to be labelled poison and may only be sold by firms of chemists and druggists.

In addition, as a result of poisoning cases due to the use of sodium fluoride as an insecticide, it was felt that some measure of protection should be given to the public in regard to fluorides and, therefore, the Department is considering taking steps to have the provisions of Section 82 of Act No. 13 of 1928 applied to "Hydrofluoric acid, fluorides and preparations or admixtures containing fluorides". Compliance with the requirements of that section would make known the poisonous nature of insecticides, etc., containing fluorides and fluorine compounds and would adequately safeguard the public against accidental poisoning.

15. Adulteration or False Description of Food, Drugs and other Articles: Act No. 13 of 1929.

Table 37.—Samples taken for Examination or Analysis under Act No. 13 of 1929, during the Year ended 30th June, 1940, and the Results.

Place.	Total Taken.	No. Analysed or Examined.	No. found adulterated or incorrectly or falsely described.	Prosecutions.	Convictions.
Ports of Union	960	829	30	—	—
Cape Province	1,867	1,824	192	157	95
Natal Province	505	498	31	25	21
Transvaal Province	2,529	2,529	341	252	209
Orange Free State Province	340	336	46	22	18
Total	6,201	6,016	640	456	343

A comparison of the foregoing figures with those for the 12 months ended 30th June, 1939, discloses that 47 more samples were taken during the year under review than during the first-mentioned period, 14 less samples were found on analysis to be adulterated or falsely described, 50 fewer prosecutions were instituted in respect of adulteration or false description and 97 fewer convictions were obtained.

Imported Articles dealt with at Union Ports (including Inland Customs Ports of Entry).

The work in this connection is still being carried out with the co-operation and assistance of the Department of Customs and Excise and of the 960 samples submitted for analysis or examination 501 came from Cape Town, 60 from Johannesburg, 62 from Durban, 183 from Port Elizabeth, 149 from East London, 2 from Bloemfontein, 1 from Mossel Bay and 2 from Lourenço Marques. Of these, 30 were found to be not up to standard, 166 warnings were issued on account of defective labelling or deficiency in standard, 125 consignments were released after relabelling in Customs, and 16 samples were reshipped. The articles examined included caviar (9 samples), cheese (35 samples), cheese spreads (8 samples), chutneys (2 samples), coffee, triage, etc. (9 samples), cream (3 samples), disinfectants (16 samples), drugs (17 samples), animal fat (4 samples), vegetable fats (4 samples), fish, fish paste, etc. (502 samples), flour (2 samples), canned fruit (3 samples), dried fruit (2 samples), fruit juices (2 samples), ghee (20 samples), leavening substances (2 samples), malt extract (5 samples), meal (3 samples), meat, meat paste (228 samples), condensed milk (4 samples), milk powders (10 samples), canned soups (34 samples), canned vegetables (30 samples) and confectionery, custard powder, flavouring and thickening substances, jam, jelly powders and margarine (1 sample each).

More than two-thirds of the total number (960) of customs samples consisted of tinned or potted meats, fish and preparations of fish. Pursuant to the remarks contained in the last annual report these articles were selected as a preliminary for stricter enforcement of the labelling provisions of the Act and regulations in regard to imported articles. Not only were all labels carefully scrutinised but the majority of the samples were analysed to determine, in the case of meat and fish preparations, whether they complied with the prescribed standards, or were tested for metallic contamination and, in the case of fish, for preservatives. Consignments of tinned fish found to contain preservatives were all from the Scandinavian countries. As was to be expected the unprecedentedly large number of samples and the wholesale detention of consignments caused a certain amount of congestion, but thanks to the wholehearted co-operation of the Customs authorities and the magnificent response on the part of the staff of the Government Chemical Laboratories, the work was completed in the shortest possible period of time and without undue delay or inconvenience to importers.

During the year the question of the use of synthetic ingredients in aerated drinks and other beverages was brought to the fore. Representations were received from the South African Fruit Producers' Association requesting the Department to amend the act and regulations so as to restrict the use of synthetic ingredients in soft drinks and beverages (aerated and non-aerated). As a result of these representations and in accordance with the Department's policy of support and encouragement for any movement aiming at the betterment of the nutrition of the people of South Africa, a representative meeting was convened in Cape Town on the 24th April, 1940, with the object of bringing together and ascertaining the views of the various parties affected by the proposals put forward by the Fruit Growers. The meeting unanimously approved a resolution calling upon the Minister of Public Health to arrange for a full enquiry into the matter and requesting that representatives of the fruit producers on the one hand and representatives of the industrial and commercial interests concerned on the other be co-opted for the purpose of the inquiry. The Department attaches the utmost importance to this matter which affects not only the various producing, manufacturing and commercial interests concerned, but also the public from the nutritional and economic points of view and it has accordingly decided to submit the matter to the National Nutrition Council for consideration.

Sampling by Local Authorities.

No fresh delegations in terms of Section 2 (3) of the Act were made during the year. The number of municipalities authorised to undertake the sampling in their areas of perishable articles as also flour, meal, bread and other articles not packed or sold in sealed packages is 32. They are:—Cape Town, East London, Graaff-Reinet, Grahamstown, Kimberley, Kingwilliamstown, Paarl, Port Elizabeth, Queenstown, Uitenhage, Walmer (Cape Province); Benoni, Boksburg, Brakpan, Germiston, Hercules, Johannesburg, Klerksdorp, Krugersdorp, Nigel, Potchefstroom, Pretoria, Randfontein, Roodepoort-Maraisburg, Springs, Vereeniging and Witbank (Transvaal); Bethlehem, Bloemfontein and Kroonstad (Orange Free State); and Durban and Pietermaritzburg (Natal).

These local authorities are entitled to the examination or analysis in a Government laboratory free of charge, of an annual number of samples calculated on the basis of 4 samples per 1,000 of their European population.

During the year a total of 3,401 samples was taken by them under their delegated powers (namely, 927 in the Cape Province, 2,003 in the Transvaal, 329 in Natal and 142 in the Orange Free State) of which 461 were found to be adulterated. Legal proceedings were instituted in 349 cases. Convictions were obtained in 343 of these cases and fines totalling £1,109. 3s. were imposed. The more important articles submitted for analysis included 2,272 samples of milk (299 adulterated), 492 meat and fish (68 adulterated), 239 ice-cream (62 adulterated), 94 coffee and chicory (6 adulterated), 17 flour and meal (none adulterated), 17 fats and oils (none adulterated), 18 cheese (5 adulterated), 8 honey (2 adulterated), 6 dried fruit (1 adulterated), 12 sugar (none adulterated), 1 butter (not adulterated), 15 rice (none adulterated), 5 oats (2 adulterated), 4 tea (none adulterated), 4 aerated waters and squashes (3 adulterated).

Sampling by the Department.

The Department's inspectors, two of whom are stationed in Cape Town, one in Pretoria and one in Durban, are entrusted with the duty of carrying out sampling in the areas allotted to them for inspection purposes under the Act. In smaller urban areas sampling, especially of milk, takes place with the co-operation and assistance of the South African Police. In Johannesburg, the City Council's inspectors carry out, on behalf of the Department, the sampling of milk on Railway premises and of such articles as are not covered by the powers delegated to the Council in terms of Section 2 (3) of the Act. A total of 1,842 samples was submitted for analysis, of which 148 were adulterated. A hundred prosecutions were instituted and 64 convictions recorded in respect of which fines totalling £181 were imposed. Some of the articles analysed included milk 1,489 samples (102 adulterated), drugs and medicines 81 (9 adulterated), meat and fish 22 (none adulterated), fresh fruit 1 (not adulterated), aerated waters and squashes 44 (1 adulterated), coffee 14 (1 adulterated), fats and oils 36 (6 adulterated), chutneys and sauces 3 (none adulterated), soap 26 (2 adulterated), disinfectants 10 (9 adulterated), pepper 2 (none adulterated), canned vegetables 2 (none adulterated), honey 8 (none adulterated), jams 8 (none adulaterated), flour 5 (none adulterated), cream 2 (1 adulterated), ginger beer 6 (2 adulterated).

General.

The Department's inspectors continue to carry out inspection tours of the Union in connection with the enforcement of the provisions of Act No. 13 of 1929. These still reveal irregularities which necessitate written warnings being sent to the offenders. On the whole, however, a decided improvement is noticeable on the part of manufacturers and others in complying with the labelling requirements of the Act.

16. UNSOUND FOODSTUFFS.

The inspection and examination of consignments of foodstuffs entering the country continued as far as was practicable with the collaboration of the Department of Customs and Excise. Those condemned as unfit for human consumption included 149 tins of salmon, 19 cases canned fish, salmon and sardines, 15 tins olives, 52 cases lemon and barley water, 40 cases dates, 72 cases tinned cucumbers, 10 tins and 10 cartons cucumbers, 14 bags gelatine, 13 tins olives, 22 tins meat, 1 bale coconuts, 2 bags coffee, 3 cases tinned ham, 1 case tinned beans, 1 keg granadilla juice, 8 tins lilyroot, 17 tins canned and 22 cases tinned vegetables, 2 tins edible oil, 357 bags rice, 2 bags wheat, 6 tins cherries, 14 bags meal and soya-bean flour, 5 tins canned fruit, 18 tins pickles, 5 cases citric acid crystals, 7 cases oatex stout, 7 cases figs, 40 tins creamed rice, 2 tins golden syrup, 5 cartons marshmallow candy, 51 cartons and 13 cases cocoa, 1 case turkish delight, 3 cases jams, 8 tins cods' roes, 1 case Gouda cheese, 12 baskets Fala yeast and 1 case tinned asparagus.

The total approximate value of foods destroyed in terms of the Port Health Regulations as unfit for human consumption amounted to £909. 15s. 10d.

Inspectors of the Department in the course of their inspection tours under Acts No. 13 of 1928 and No. 13 of 1929 also dealt with tinned foodstuffs stocked by general dealers and such as were found to be blown or otherwise not sound were suitably disposed of.

In places where there is a constituted local authority, action under the Unsound Foodstuffs Regulation devolves on such authority.

During the year the Unsound Foodstuffs Regulation published under Government Notice No. 734 of 1933 was held by the Magistrate's court at Germiston to be *ultra vires*, on the ground that the regulation does not clearly define the point at which a blown tin comes within the scope of the regulation. There is a type of tin, known technically as a " springer ", which to the eye appears blown, although the blown appearance is not due to unsoundness of its contents but usually to weakness of the tin itself. It is obviously desirable to avoid the destruction of tinned foods which are not really unsound, but it is very difficult to devise tests that will infallibly distinguish between truly blown tins and pseudo-blown tins, and still more difficult to devise a formula of words which will enable tradesmen, food inspectors, and finally the courts to make the distinction. The Department's professional officers, in collaboration with the Law Advisers, are at present engaged upon this task.

17. NUTRITION AND DIETETICS.

An outline of the recently established National Nutrition Council is given in the introduction to this report. This council will now undertake the major portion of the work in connection with the prevention of malnutrition. This Department is still directly connected with nutrition and dietetics, however, and the programme outlined in last year's report has continued to develop on the following points:—

(*a*) Compilation of diet scales and daily dietaries of institutions under the control of the Department in terms of adequate protein, fat, carbohydrate, vitamin, mineral and total calorie requirements, and the revision and reconstruction of existing scales where necessary.

(*b*) Supervision and reorganisation, where necessary, of all dietary departments of institutions under the control of the Department.

(*c*) Inspection of state and state-aided institutions for the purpose of giving advice and guidance in matters relating to dietetics and food administration.

(*d*) Giving advice on matters relating to nutrition and dietetics to all Union Government and Provincial Departments, Municipal and other local authorities, public and private bodies and individuals.

(*e*) Health education work through the Press and through departmental publications, correspondence, lectures and demonstrations.

Eighty-two inspections of the dietary departments of Provincial and Government institutions were made. These included schools, orphanages, hostels and hospitals chiefly. In addition twenty-eight lectures on nutrition and dietetics were given to various other organisations. Numerous requests from Union Government and Provincial Departments, Municipal and other local authorities, public and private bodies and individuals for advice on matters relating to foods and nutrition, dietetics and food administration have also been dealt with by the Department.

Indigent Ration Scales.

The Regional Conference of the South African National Council for Child Welfare was attended by a representative of the Department. The question of feeding families on relief was one of the chief problems to be considered. As a result of this conference the Department was asked to draw up suitable ration scales for indigent families. This was carried out and the required low-cost dietaries for individuals at different age-levels are now being used by the various organisations concerned with relief.

A special investigation into the components and the number of meals per day was carried out by the Department's medical inspector in 12 districts in the Transkei amongst 10,982 Native children and the summary of results is indicated in the following table:—

No. of Children.	3 Meals per Day.	2 Meals per Day.	1 Meal per Day.	Mealies.	Meat.	Milk.	Pumpkins.	Beans.	Other Vegetables.	Marewu.
10,982	9,286	1,646	50	10,982	1,606	4,335	909	3,100	928	84
Percentage	84·5	14·9	0·6	100	14·6	39·4	8·2	28·3	8·4	0·7

In general the meals are comprised largely of carbohydrates and the investigator comments on the prevalence of pellagra, scurvy and nutritional oedema which is due mainly to the unbalanced diet. Meal times are extremely irregular and many children proceed to school in the early morning with no food at all, i.e., on an empty stomach. The two meals are usually had, one at about 3 p.m. when school is over and the other at dusk. Those fortunate enough to have an early morning meal usually have what little has been left over from the previous evening.

In the southern parts of the territories, i.e., Butterworth, Kentani, Idutywa and Nqamakwe, the diets are much more balanced, due mainly to the progressive spirit of the Fingos and the efforts of the "Health and Nutrition" visits of Mr. Baker, who is principal of the Teko Agricultural School, and his helpers.

In Natal, in association with a clinical investigation of 1,000 Indian school children the assistant dietitian of the Department has just completed a detailed study of 40 Indian families at Durban, which involved 366 persons of whom 168 were under 14 years of age. The results obtained are compared with 68 European families in Pretoria investigated by H. le Riche and the percentage distribution of calories of averages for these two groups are indicated as follows:—

	Total Protein.	*Fat.*	*Carbo-hydrate.*	*Total Calories.*
Average European family	8·7	23·4	65·0	3374·6
Average Indian family	9·0	21·0	70·0	2854·0

It will be noted that the distribution of calories is fairly similar, though the Indians obtain about 2 per cent. less from fat and 5 per cent. more from carbohydrate than do the Europeans. There is, however, a marked difference in the actual quantities, the Indian intake being, for each constituent, distinctly lower than the European. Other comparisons cited in the report suggest that the food requirements of the South African Indian may be nearer to that of the Indian in India than to that of the European South African.

An analysis of the mineral content on a *per capita* basis showed that the calcium was markedly low, phosphorus was below standard and even iron was slightly deficient.

In connection with the vitamins, it was shown that in each family fruit and vegetables formed an important item, upon which several shillings were spent each week and the average intake of the group was satisfactory in regard to the three vitamins A, B and C. Vitamin D was not investigated because in South Africa exposure of humans to the abundant sunshine ensures an adequate supply of this vitamin without specially turning to food sources for it.

Additional details including food costs in the report, make it a valuable contribution of accurate work and it is hoped to have it published in the near future.

In addition to these departmental investigations the Railways Administration is carrying out progressive and practical nutrition schemes based on the findings of the Union Health Department's preliminary nutrition surveys which showed, broadly, that:—

(*a*) Cases of serious underfeeding or hunger on a large scale were not discovered.

(*b*) About one-third of the European boys and girls gave evidence of varying degrees of malnutrition, mostly to a smaller degree.

(*c*) The diet deficiencies were mostly those in respect of protective foods, e.g., milk, meat, vegetables and fruit.

(*d*) Physical defects were most common in the children of the Cape Province and Orange Free State.

In making this survey, clinical, physical and dietetic data were used.

In conducting the survey among railway families only, physical and dietetic data were used by the health visitors, but the conclusions arrived at correspond closely to the above, viz.:—

(*a*) There is no serious lack of food among railworker families.

(*b*) There is a marked absence of protective foods in the diet of the railworker.

In assessing the adequacy of the diet, the three essential food constituents, i.e., body-building foods, vitamin- and salt-containing foods and energy- and heat-producing foods, were taken into consideration and the diet was classified under the following heads:—

A. Properly balanced and adequate in respect of all three factors;
B. Inadequate in respect of *one* factor;
C. Inadequate in respect of *two* factors;
D. Inadequate in respect of *all three* factors.

Applying this classification to a representative number of families from all systems, the following table shows the percentage defects under each heading:—

A Diet.	B Diet.	C Diet.	D Diet.
11%	41%	43%	5%

The causes underlying these defects are tabulated in descending order of frequency:—

(*a*) Ignorance in regard to the value and preparation of foods.
(*b*) Local scarcity.
(*c*) Ignorance in regard to purchase of family necessities.
(*d*) Lack of means due to squandering, gambling, drink, mismanagement of financial affairs.
(*e*) Lack of means due to large family, high cost of living, debt and sickness.

Much has been done through vegetable and other nutrition schemes, clubs, lectures and general advice in the home to combat these causes.

As shown under the causes of dietary deficiency much is attributed to ignorance and local scarcity of foodstuffs (particularly protective foodstuffs). As a result of these causes malnutrition amongst the railway workers and their families is a very serious problem encountered by the health visitors. It was found that carelessness and ignorance with regard to the buying, choice and preparation and value of foodstuffs were the main causes of the evil. Nutrition clubs were concentrated upon to combat it. These clubs operate on a co-operative basis and essential commodities are supplied to the families at a price within the reach of everyone.

It is fully realised that, by bringing these commodities within reach of everyone, some responsibility has been taken off the shoulders of the individual. This spoonfeeding without counter-assistance from the participants would be unsound policy. The members of the clubs are, therefore, gradually made to shoulder more and more responsibility regarding the carrying out of the schemes. In this way they are encouraged to help themselves. In some cases the running of the club is already left entirely to the members. Each club has a committee and secretary and members are appointed to assist with distribution and organisation. The clubs are run on a monthly cash basis and teach the families to avoid credit.

At the same time, the Administration is assisting to build up a physically fit staff in so far as nutrition is concerned. The physical education scheme inaugurated by the Administration for the benefit of its employees and their families aims at maintaining the body in a fit condition and, combined with the nutrition schemes and personal hygiene which is stressed in St. John Ambulance lectures, ensures health, happiness and increased earning power to all those who participate.

Details of Clubs.

Vegetable Clubs.

System.	No. of Clubs.	Date of Commencement.	Maximum Membership.	Present Membership.
Cape Western	9	April, 1940	170	143
Cape Northern	3	July, 1939	656	656
Cape Midland	2	April, 1940	70	70
Cape Eastern	3	February, 1940	280	237
Orange Free State	11	November, 1939	620	171
Natal	12	December, 1939	1,118	1,118
Western Transvaal	15	October, 1939	700	450
Eastern Transvaal	42	May, 1939	2,000	1,300

Milk Clubs for Families.

This scheme was commenced at Durban in the Wentworth Railway Camp in December, 1939, with a membership of 25. The club was formed as a result of the scarcity of milk and the consequent high price. Milk in bulk is railed from a farmer at Nottingham Road and distributed to members in pints.

Difficulty is at present being experienced in connection with this club, as the Dairy Products Control Board requires it to be registered as a distributor and to comply with the rules regarding distribution. As this cannot be done, a suggestion has been put forward that the milk be obtained from the Surplus Milk Pool at Durban, but this is at present not possible.

Dried Milk.

An experiment in supplying dried milk to pre-school children in districts where fresh milk is not obtainable is being carried out on one of the systems before the scheme is finally put into operation.

State-Aided Milk and Butter Scheme.

Since this section has undertaken the supervision of the distribution of state-aided butter and milk to the families of Railway men renewed interest has been shown in the expansion of the scheme, especially to the smaller isolated stations and towns where the need is great.

The following pre-school and school milk schemes have been started:—

System.	No. Started.	Membership (Present).
Cape Western	—	—
Cape Northern	1	50
Cape Midland	3 school	Unknown
	2 pre-school	100
Cape Eastern	—	—
Orange Free State	1	20
Natal	4	260
Western Transvaal	4	211
Eastern Transvaal	—	—

On the Cape Western system the educational authorities have been approached with a view to supplying milk to Coloured pre-school children at the school buildings.

At Witbank on the Eastern Transvaal system, a pre-school milk scheme is being organised. The pre-school children are weighed once per month when the Railway Medical Officer also examines them and keeps an eye on those who show no gain in weight on the previous month.

On the Cape Midland system the manager of the Sundays River Citrus Corporation has undertaken to send 5 bags of oranges and 1 bag of grape fruit, free of charge, to each of five schools in the Karroo area. To cover railage each child contributes 1d. per week.

System.	No. of Butter Schemes investigated.	No. of Distribution Centres on System.
Cape Western	8	18
Cpae Northern	16	8
Cape Midland	9	28
Cape Eastern	14	20
Orange Free State—7 lines radiating from Bloemfontein	—	27
Natal	—	12
Western Transvaal	7	17
Eastern Transvaal	10	18

According to a report submitted by the manager of the State-aided Butter and Milk Scheme regarding the local control of the scheme, there are 4 sections of the community doing the distributing of butter to railworkers:—

(*a*) Railworkers' butter-distributing committees which, as the name indicates, are formed solely for the purpose of distributing butter to railworkers. In some cases Spoorbond or A.T.K.V. organise these committees and are included under this heading. These committees form 50 per cent. of the total number of committees.

(*b*) Butter distributing committees which are formed to distribute butter to local needy families. These committees also include railworkers.

(*c*) Established organisations such as the Vroue Federasie, Child Welfare Society, Agricultural Union, etc., which organise distribution of butter to local needy families and also include railworkers.

(*d*) Railway institutions and hostels which buy butter for railworkers and railway children.

For the month of March, 1940, 9,336 railworkers received butter in the Union at a total cost of £124. 17s. 9d. for that month.

Other valuable work in connection with nutrition is being carried out by the South African Institute for Medical Research. At present the bio-chemistry of vitamins and the assay of South African foods to establish their content of these essential food factors is the subject of the main investigations.

Elsewhere in this report [Infectious and Preventable Diseases, section V, paragraph 15 (*a*), Deficiency Diseases] brief comment is made on the incidence of pellagra which is still being very frequently confused with various infectious conditions and which requires far wider recognition not only from the humanitarian point of view but also as an obvious pointer to malnutrition in a locality.

18. Blood Transfusion.

The increased volume of world-wide work which is being done in this connection has proved beyond doubt that transfusions can play a life-saving part in a variety of medical and surgical conditions and in no way be deleterious to patient or donor. In our own country there has been a rapid expansion of blood transfusion services in which this Department has a real interest. The creation of blood banks, the storage of whole blood or serum, the research into blood chemistry and physiology and the improvements in transfusion technique and in administration of such a service is new work which is having very interesting results. Even in institutions administered by this Department, it is playing an encouraging part, for while a small series of cases of leprosy were apparently not benefited by transfusions, they have proved invaluable as a pre-operative aid to tuberculous patients about to undergo drastic major surgical procedures like thoracoplasty, in which, at the time of writing, there had been no fatality in a series of eight operations, although the mortality for such procedures has been high elsewhere.

The Rand Blood Transfusion Service is doing good work in both routine service and research and has stimulated the desire for wider co-ordinated facilities. The matter is receiving the attention of the Department.

19. Solar Radiation.

Until very recently there has been a deplorable ignorance of the nature and value of sunlight in South Africa and its possible influence on human, plant and animal life.

In view of this lack of knowledge and the consequent serious deficiency in our public health armamentarium the Union Government took advantage of a favourable opportunity in 1935 by inviting Miss G. Riemerschmid, who was carrying out investigations on sunlight and allied climatic factors in Kenya, to come to the Union. The invitation was accepted.

Her preliminary investigations revealed striking facts, for it appeared that our sunlight had a similar value to that at some of the best known health resorts in the world.

As indicated in the Annual Reports of 1937 and 1938, the work was continued and six stations were established, namely at Johannesburg, Bloemfontein, Nelspoort, Durban, Port Elizabeth and Cape Town.

The work of one complete year of investigation (July, 1937-June, 1938) is to be published in Volume XV, No. 1 and 2 of the *Onderstepoort Journal of Veterinary Science and Animal Industry*, July-September, 1940, and the finding of general interest are briefly that:—

(1) South African sunlight compares very favourably in quantity and quality with that at many famous health resorts. In fact, readings at Johannesburg showed that the total radiation was markedly higher than at Davos, Switzerland and nearly twice that of Bad Nauheim, Germany. The other inland stations at Bloemfontein and Nelspoort gave somewhat similar results.

(2) Even at the coastal stations the sunlight was equal to Davos in quantity and intensity.

(3) The amount of radiation at the inland station at Johannesburg was in general distinctly higher than that at any of the coastal stations.

In view of these fundamental facts further investigations into the optimal exposure to South African sunlight and the possible dangers of over-exposure are under way. Detailed observations of the infra-red and ultra-violet rays appear to be amongst the most important investigations from a medical and a public health point of view. Evidence has been put forward to show that the incidence amongst comparatively young people of atheroma, a disease akin to calcification of the arteries, is associated with over-exposure to solar radiation in this country. If this is so then the need for accurate knowledge of our sunlight is amplified and indeed is essential as a basis for safe heliotherapy.

Readings taken at Johannesburg have proved that the amount of ultra-violet radiation in summer is approximately 15 per cent. greater than that recorded at Davos. In winter the difference is even more marked, for during the average clear day, Johannesburg obtains up to three times as much as the Swiss resort under similar conditions. This evidence may prove of great significance to the medical aspect of the present work.

Owing to the war, the survey has, unfortunately, had to be considerably curtailed for lack of additional staff. The original six stations have had to be discontinued and there are at present only three new ones. One is at the Government Research Station at Armoedsvlakte near Vryburg, one at Messina, and the third (which is the new headquarters), is at Onderstepoort, Pretoria.

VII.—ACKNOWLEDGMENTS.

The South African Institute for Medical Research has, as usual, co-operated very closely with the Department during the past year and I wish to express to the Board of the Institute and to the Director and staff my sincere appreciation of the help they have rendered so willingly at all times.

The South African Medical Council and the South African Pharmacy Board have also rendered material assistance to the Department, especially in connection with matters arising under the Medical, Dental and Pharmacy Act, No. 13 of 1928, and the ever-ready willingness of the Presidents, the members and the Registrar to collaborate is much appreciated.

As in previous years there have been consultations with the Federal Council and on purely local questions, with branches of the Medical Association of South Africa. The assistance rendered by the Presidents and members of these bodies in connection with the problems referred to them has aided the Department considerably.

Various matters affecting both the Department of Agriculture and Forestry, more particularly its divisions of Veterinary Services and Chemical Services, and this Department, have been dealt with during the year. The Department's thanks are especially due to Dr. P. J. du Toit, the Director of Veterinary Services, and Dr. J. P. van Zyl, the Chief of the Division of Chemical Services, and to the members of their staffs.

Municipal Medical Officers of Health have been most helpful and I gladly acknowledge the ready assistance received from them.

Finally, I wish to place on record my appreciation of the good work rendered by all officers of the Department—professional, administrative and clerical. Mr. A. Stuart, the Under-Secretary for Public Health, Mr. R. S. Gordon, the Chief Clerk of the General Branch of the Department and Vice-Chairman of the Housing Board, Mr. P. I. Phelan, Accountant, and Mr. J. Sanders, Secretary to the Housing Board, will retire on superannuation in the near future. These officers, with the exception of Mr. Sanders, have been associated with the Department since it was constituted a separate Department of State in 1919. I wish to take this opportunity of paying a tribute to them for the excellent services they have at all times so willingly rendered.

I have the honour to be,

Sir,

Your obedient servant,

PETER ALLAN,
Secretary for Public Health.

Pretoria, 17th December, 1940.

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